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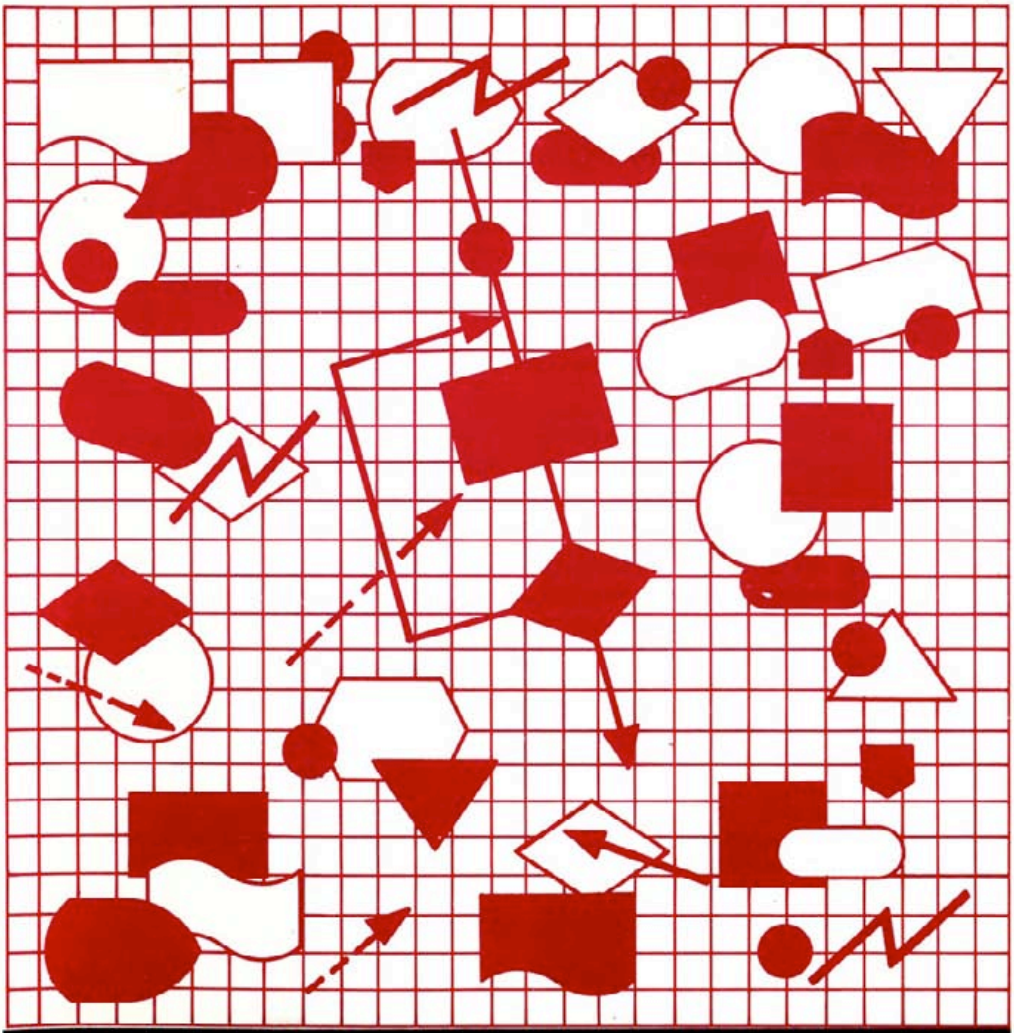
June 1985 Volume 5 (3)



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EDITORIAL

Well, it looks like BASUG is still in a period of continuing change, if not evolution ! Regrettably, Q has felt it necessary to resign and, to date, there is no obvious candidate for the job. Perhaps this is an indication of the high degree of commitment which is a necessary prerequisite for any really meaningful activity connected with the club. This raises the question, how many really competent people are willing to devote a largish part of their time, for free, to a user group which, without direct reward, helps to support the profits made by a large international company? OK, it's a club, but people have also to earn a living, so very often the two areas of interest eventually become incompatible. One thing Q has done is to get the finances of BASUG back on track. In the establishment of the FORCE and in my own case, with HARDCORE, he has been concerned, enthusiastic and supportive. He will be missed and we wish him well in his future endeavours.

On to a different subject now. HARDCORE contributors, who have sent disks, have experienced a delay in getting them returned because I have been operating the system inherited from previous editors, whereby disks were returned with the credits allocated after the article was published. In future, disks will be returned as soon as I can take off the text. Remember, it is virtually essential to send contributions on disk, as DOS text, CP/M, or BBC files. Get my address from the administration number and send your contributions directly to the Editor, otherwise delays in publication may be excessive. You can also upload articles on BABBS 1 or the FORCE. By the way, each credit is worth £2 when exchanged for a blank new, or software library disk. The general rule is that contributors get one credit per HARDCORE column for homegrown original pieces (excluding short letters).

Apologies for the quality of the text in the last issue. As readers will remember, we changed printers and the new man didn't get it quite right. I expect a definite improvement in quality for this edition.

CHAIRMAN'S CORNER

By Q.

By the time you read this the Apple '85 show will be lost in the mists of time, although, at the time of writing, it has not yet taken place. Hopefully it will have been an enjoyable event, reminiscent of pre-'84 years. Previous Apple shows were based around the home user, offering cheap software and 'knock-down' peripherals. The business positioning of Apple in the marketplace seemed to have a detrimental effect on last year's show, or was it just me !

Apple seem to have had a problem in the last 18 months or so in differentiating between the 'home user' - read hobbyist - and the businessman. It does not seem to be possible in the corporate mind that the two categories can actually be the same person. Can the Apple user in the business environment really sit up beyond midnight in front of his Apple and remain a serious target in their marketing dream ? It would appear not, home users or hobbyists are, it seems, undesirable these days. Strange if you consider that the huge software base which has made the II series such an enormous success was largely created by hobbyists. In bygone days Apple Inc. encouraged and helped us to delve deeper and deeper into the inner workings of their products. The results of this happy relationship are the many innovative and quite superb programs which are, even now, being written for that venerable machine. Not so the Macintosh, 'Closed book' I keep hearing from the users I know. Bulletin boards both here and in the States, particularly the latter, are filled with messages of woe about the negative responses from Apple to their plea for more information. If the Apple II is the most documented computer in history then the 'Mac' seems to be almost the least.

If the Macintosh was conceived as a business machine, why is it that 'Mac' specific magazines are springing up almost weekly. I can't believe that they are in existence to discuss solely the finer points about a 'locked' business package, surely they are a common reference point for people who USE the machines and want to extract as much as possible from them.

The purpose of groups such as BASUG is because most, if not all, members enjoy the comradeship of owning an Apple, much like owners of MG cars. Moreover this link trancends national and international boundaries to extend a degree of warmth worldwide - owning an Apple has become almost a family affair. To me at least this attitude, apart from being fairly re-assuring at this time in our history, gives Apple a unique marketing strongpoint, one surely to be nurtured and fostered. The Macintosh must be one of the most innovative computers around and the nature of the interface with the user seems to echo the relationship that Apple users used to have with the company itself. Now however we learn that Apple are to discontinue the Lisa from their range, and the latest rumour circulating in the States is that the 'Mac' itself will be discontinued in '86. With the demise of Steve Wozniak and Mike Markkula from Apple, combined with persistent adverse rumours about the future of the company I wonder if Apple '86 will ever happen. Wozniak's recorded interview in 'Byte' and his obvious dismay at the way the company had evolved and was heading displayed an attitude which is perhaps embodied in the name of his new company - MBF - My Best Friend - past tense one assumes. Personally I would buy a 'WOZ' without hesitation, whatever it was, as I believe that with him went the true spirit of Apple.

A recent survey of Apple users by Nibble magazine in the U.S.A. revealed that 25% of the readers who returned questionnaires either owned a 'Mac' or were considering buying one as a second computer. It seems resonable to assume therefore that, like it or not, the 'Mac' is finding its way into the hands of people who want to poke around in the internals. If the software explosion of the II family is responsible for the massive world sales then it seems reasonable that Apple should consider releasing the 'true' story of inside Macintosh, help the dreaded 'hobbyist' as much as possible, assist and actively support groups such as BASUG then sit back and watch the sales figures. Oh yes, Apple should do something with the price, after all the more Macs out there the sooner the software will start coming in. If the follow up to this scenario was that the Mac became the direct replacement for the II series, and given the help suggested, personal and business computing would take major strides forward to every-ones benefit.

Otherwise, with the advent of the Atari 'Jakintosh' and Digital Research's GEM software environment Apple could find the huge sums spent on promoting the Mac becoming the own goal of the decade.

The preceding outpourings are by way of my swan-song as this is, unfortunately, my last Chairman's corner. Pressure of work now having claimed me rather earlier than my predecessor. I shall still be around but as an interested bystander as I can no longer give the position of Chairman the time that the post demands. However I must thank all my fellow committee members who have supported and helped BASUG during my term of office and ask that you continue to support them, and my successor, in their time consuming endeavours in providing this altogether wholesome aspect of Apple computing.

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5. Keyzone Ltd., (see advert on the back cover) offer members a 10% discount.
6. University of Salford offers a discount of £10 per course to BASUG members attending their Apple II short courses. (contact Graham Keeler, Dept. of Pure and Applied Mathematics, and see Update for details of courses offered.)

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A TRIP ROUND APPLEWORKS

By Chester Kemp

Introduction

"Appleworks" is a business package that integrates a spreadsheet, a word processor and a database. The integrated package is an increasingly popular concept and it is now being implemented on a wide range of computers. Apple have brought an interesting contender into the arena.

Appleworks runs under the ProDOS operating system but you don't need to get any ProDOS manuals to run it. It requires an Apple //e with the 80-column board and whilst this is all you minimally need, it is nevertheless advisable to have the extended 80-column board (complete with the extra 64k memory); this leaves you with a work area of 55k RAM on your "desktop". The issue of the amount of available memory is quite a crucial one because each application must be totally RAM based. You can either have one whole database (or spreadsheet or document), or else any combination and number of them (e.g. two documents, a spreadsheet and three databases!), and the only constraint is that they do not exceed the 55k RAM desktop.

The concept of the integrated desktop is rather more complex than just having the facility to keep a number of chores simultaneously available for work, it also requires that data can be transferred between each facility. Data in the spreadsheet and database can thus be made available for the word processor. A typical example may be a report on current stock levels complete with projections for the coming year. The passing of data between applications is done by cutting to, and pasting from a "clipboard" - this clipboard also shares the available desktop memory. Well that basically describes it so now let us look how it is implemented and how well it works.

The package comes complete with two manuals (one a tutorial and the other for reference), an entertaining tutorial disk that takes you through the main aspects of the package, a disk of example data, and a 'flippy' disk with the 'boot' on one side, and the programs on the other. The boot/program disk is not protected so you first make a copy and work with that; the copy must not have a write-protect tab as the system writes to the disk (e.g. the current date). The main source for working with Appleworks ought to be the reference manual, but much of the learning is done hands-on with the package (don't worry about doing this as it is really quite hard to do any accidental damage). The manuals are friendly and well written in the style that we are coming to expect from Apple - however it has what could be perversely described as a bonus : a constant sense of adventure as you find out about something else that you didn't know that the system could do. Actually I don't necessarily mean this as a compliment, because some of this adventure is due to the reference manual not being wholly adequate. I regard the term 'reference manual' to imply something that is both complete and definitive whilst at the same time being so well indexed that any facet of the system can be easily found: this manual did not really come up to my expectations.

The commands used by Appleworks are keyed-in using appropriately mnemonic alphabetic keys coupled with the the Open- (or Closed-) Apple key (for which I'll use '@'): for example @B for Blank, @C for Copy, @P for Print, etc. The value here is that similar functions in record, sheet or record use the same @-keys. Those who have to work with a number of differing packages, will know how frustrating it can be in dealing with the multiplicity of different commands for similar actions. A useful function is @H (Hard Copy) which will give you a screen dump at any time. The main data transfer keys are @M (Move) and @C

(Copy). The distinction between the two is that @C(opy) just takes a copy and leaves the original intact, whilst @M(ove) deletes its previous location as well; these commands can either be used within the current document or during transit to or from the clipboard. The other main function is the @-"number" where the number (between 1 and 9) refers to its relative place in the document: thus for the start press @1, for the middle press @5, and type @9 for the end. This proportionate jumping round the files is particularly useful. Naturally the four arrow keys move you around by line or character, but the up and down arrows can be preceded by the Open/Closed Apple and this moves the cursor to the screen upper or lower boundary, and if repeated moves a complete screen.

Word Processor

The word processor allows you to write text as wide as 80 characters and once the width of the page is established it automatically keeps real margins even if the character font size changes (in many word processors the left margin is defined by a number of spaces, and if the spaces are of 16cpi instead of 10cpi then the margin is physically narrower). You find, from time to time, people write in about their printer not reacting to instructions to change font size, and the answer is that the required instructions to the printer must immediately follow a carriage return, and that the word processor sends its left margin spaces before it sends the codes to the printer thereby invalidating it. This problem is not insurmountable but it is a nuisance: a Centronics 739, my printer, is one of those nuisances. Appleworks has no such problem as it sends the codes before the spaces: a small but significant point for many.

The printer options allow you to define the usual top, right, left and bottom margins; whether single, double or triple spacing; boldface, underline, sub- and super- scripts. Naturally this pre-supposes that your printer can do these things. Certain printers are pre-defined such as the Apple printers including the Imagewriter, also the Epson dot matrix range and Qume Sprint daisy wheel printers. You can also define your own printer by a simple interactive process. Primarily Appleworks word processor adopts the style of 'wysiwyg' (pronounced "wizzywig" and meaning 'what you see is what you get'). With the exception of an absence of even right margins on the screen (but correctly printed), there seems to be one other exception: this is to do with proportional printing. Here Appleworks gives two proportional fonts, but I am not sure to which each relates. Neither are appropriate to my Centronics printer, and inadequate information is given to customise this to what must surely be similar algorithms to the ones already provided.

You can control tabulations, indent paragraphs, force page breaks and enter headers and footers. One nice feature is 'group' markers which define a start and end of a block of text that must not be split up. However, there is one thing I'm not happy about - you do not know where a page break naturally occurs when typing. To find this you press @K(alculate) which then will show these breaks, but in a messy document where you have to force a number of page breaks you have to keep pressing @K again and again until you do your last correction. I would have liked to have a word count facility for when I have to write articles of a specific length, but this is not a common facility anyway.

Standard features include @F(ind) and @R(eplace), but a useful adjunct is the @Z(oom) function which gives on-screen information on all printer options whilst explicitly displaying all carriage returns.

Spreadsheet

The spreadsheet does not have as many functions as some on the market, but nevertheless is still very competent. There are no trig functions. The functions provided are ABS, AVG, MAX, MIN, SUM and IF. In many spreadsheets /G(lobal) and /F(ormat) are used to make universal changes and specific-area changes respectively; the equivalent Appleworks pair (which were not immediately apparent to me) are @V(alues) and @L(ayout). An unusual effect of making universal changes (@V) to column width is that if uneven columns have previously been specified by @L, then the increase or decrease in the size of each column retains those same relative differences.

General features that are available are displaying formulae (using @Z), setting titles (on the left, at the top, or both) - with or without synchronisation, and you can also split up the spreadsheet with the @W(indow) facility. The protection of cells is a necessary feature, but I found the presentation in Appleworks to be confusing. I would have liked a single command to have made all formulae write-protected, but I was unable to find the means. In my example used for time trials (below) this need was not a problem as everything except the first cell was a formula, but in a typical 'five-year costing' where the formulae are spread around in a more erratic pattern then this became a pig!

Time trials on spreadsheets can be questionable because the greater the number of the cells displayed on-screen the slower it becomes; it is therefore not really fair to compare an 80-column package with a 40-column one. However, the exercise can still be informative and with this in mind I devised a simple cell matrix of 18x18 with each cell incrementing the previous one by one. On Appleworks this took 8.2 secs to do a recalculation from an initial value of '1'. For comparison purposes, Visicalc took 4 secs, Practicalc took 3.5 secs, and The Spreadsheet (the fore-runner of Magicalc) took 2.5 secs (only Appleworks and Practicalc used 80 columns, the rest were of 40). I do not have a '6502' version of Multiplan available for comparison but it is probably similar in speed to Appleworks. As an example of the difference that the size of screen timings, I doubled the size of the matrix to 18x36 but the time did not double up to 16.4 secs though, in fact it only increased to 13 seconds; when I limited the screen by making the first column the whole width of the screen this was further reduced to only 10.6 seconds. Subjectively, I did not find the spreadsheet slow for general business purposes, but for those who use large spreadsheets then this may become unacceptable. Data can be written directly as well as coming from Visicalc or DIF files.

Database

The database is a simple but effective design. Data is collected on a single screen consisting of 15 lines of 80-columns (less the field item's name). With this design you can either have up to 15 single-line fields or else 30 half-line fields. In practise you have the data presented as a single screen record or else a list of records limited to a single line each; these classes of presentations are toggled by the @Z(oom) function. As in all aspects of Appleworks the @F(ind) will search for and highlight any string that is requested, but in the database this may be considered a little too effective, because it searches for the character string anywhere in the database irrespective of which field found the match. There is a more specific command which finds @R(ecords). This search criterion takes specific notice of which field(s) are used, and further allows combinations of ANDs and ORs as well as a variety of searching techniques including the implicit use of 'wild' cards. When @R selects records they temporarily become the whole area for subsequent @Fs until @R selects the original complete database again.

The database can be sorted in ascending or descending order for any field whether alphabetic or numeric. The manner of presentation is limited, although such presentations can be enhanced by sending data to the word processor. Data can be typed in or presented in DIF files of Quick files.

General

Saving files is very easy, and the system will warn you if you fail to save a file before finishing your session. Wherever you can make an error, such as wrongly attempting to delete something, you are always (quite properly) asked to confirm your decision. Many integrated packages are good value overall, but usually only one of the three elements is really outstanding, while the others are merely acceptable. My overall feeling about Appleworks is that each component could be sold separately with success, but in combination with the uniformity of the Appleworks operating approach they really are good value. That is not to say that they are without fault. With regard to RRP, I have seen it advertised at as low as £145 + VAT. This is excellent value for a sound and unpretentious package.

Our thanks to Apple(UK) for loaning a copy of Appleworks for this review.

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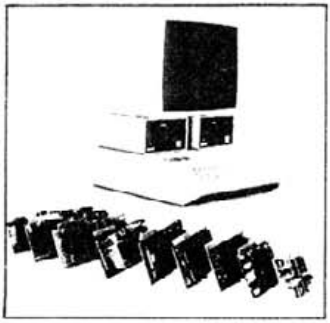

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PROGRAM GENERATORS

By Tony Corinda

This is a general interest article which takes a look at a specialised group of software tools and utilities which have become known as "Program Generators". In essence, a Program Generator is a program that writes programs. It sets out to construct programs that you want or need. You specify your requirements, usually by some Menu-driven questionnaire, give the generator all the information it requires and then sit back and wait for it to assemble your program. Having done this, it writes the code (Basic-Applesoft in our case), saves the completed work to disk and goes back to sleep.

It all sounds too good to be true - but it is not quite like that. As with lots of other things in the software world, there are snags, limitations and pitfalls. There are several different Program Generators on the market which have been around for some years now. When advertised, they all claim to be simple to operate, incredibly versatile and labour-saving and can be used without specialised knowledge. This is true of some and a gross exaggeration of others. Under such names as "Memdos", "CodeWriter" and "The Last One" you have, for example, Program Generators which vary considerably in complexity and capability. They all have a common aim (to produce end-code) but how well they do it and how easy they are to operate is another story.

For example, the company which markets 'Memdos' supplies an 82 page handbook with a restricted version of their Program Generator - called "Memdos Junior". This involves the user in learning a considerable number of new commands and syntax. The full version would be more elaborate and those not familiar with 'Masks', 'Recursivity and Nesting", or "Multi-key Indexed Sequential Filing" (their terms), would quickly find themselves in trouble. It should be remembered that one of the prime reasons for using a Program Generator - is to make life easy and to help those who may find programming a difficulty. No Program Generator is of much use if you have to learn a lot of other language to use it. It makes things much easier for you - when the operation uses familiar terms and language - or better still, plain English. "Memdos" is powerful and apparently is all the rage in France - but the version for Apple, which is the version I used, seems to demand a lot of programming knowledge and called for the user to learn their own operating syntax. For example,

```
"10 LET">NM$10,PR$15,YE=N%,SC,AD$""
```

will be unfamiliar to the average Applesoft operator.("Memdos" is available from Memsoft Ltd.)

"Codewriter" appeared first in 1982, aimed at the 16-bit computers, like the IBM.PC and was more specifically for beginners. Supplied on three disks, it came with a small but comprehensive handbook. Like other Program Generators, it called for an understanding of Basic principles. You were not expected to have a Ph.D to understand the operation. ("Codewriter" and another Generator, "Tech-writer" come from Dynatech Microsoftware Ltd.).

Then we come to "The Last One", which, in my view, is by far and away the best of the lot to date. What makes "The Last One" (or "T.L.O" as it is often called) exceptionally different is the total emphasis on "User-friendliness". Complex formatting, search and sort routines, data base structures and such like are easily organised by way of various "Menus". The operator is nursed along from stage -to -stage and virtually everything in done in plain English - very often by simply answering "Yes" or "No". I have selected TLO for this article because it is an excellent example of a Program Generator and I will examine this particular program in greater depth.

First of all, it would be illustrative to have an overview of Program Generators. Who needs them ? What can they do for you ? Are they worth the money ? How good are

they ? I will deal with these questions first and then go on to examine the Program Generator at work.

Nobody actually 'needs' a Program Generator. It is not like an Operating System, for example, DOS.3.3 used by some Apples. You MUST have that. Nevertheless, a Program Generator can be of great service to both amateur and professional programmers. In fact, at an elementary level, they would be of service to non-programmers. The professional, who values his time, will find that masses of tedious and standardised code can be churned out in no time all. However good a typist or keyboard operator you are, you cannot type a 35k program in half an hour. A program Generator will do 48k of code-writing in about ten minutes and, as a bonus, it will do it free of bugs. Any mistakes in the end program will be the product of earlier mistakes made by you and not the program. A lot of work performed by professional programmers is highly repetitive. Using a Generator, the pro' can assemble previously tried and familiar sub-routines into a structured program and get most of the code written out. After that he is free to modify and edit as he wishes. It saves a lot of time.

Non-professionals too have much to gain. Program Generators are devised largely to help inexperienced people. Such programs are in themselves very instructive and educational. They force the operator to program with regard to well-designed end products. You find yourself developing good programming technique. Top-down structuring is forced upon you and without realising it, you find you are creating properly designed programs and not spaghettified garbage.

Few computer users acquire the expertise to be able to write efficient large programs; integrated suites and such kind. To have at your disposal a means of producing reasonably large (or small) programs, when you want them and without too much toil and tears, is unquestionably an advantage. This applies especially to business users. Program Generators are particularly good at constructing and manipulating data bases. Nearly all business programs revolve around Data-base, record-keeping requirements. Generated programs may not be as intricate and versatile as commercial packages, but they do have one outstanding superiority. They can be custom-made, designed to fit your exact requirement, and they can be modified as and when changes are needed. You don't have to run your businesss to conform to a program. The program conforms to your business.

Program Generators can be used for many other applications. Some very good scientific, educational and industrial work has already been produced. They make it easier to store, manipulate and display data. You could use them to write an Adventure Game or to write a program to run a large chicken farm. They are good at producing Printed Reports and Screen displays. They are not capable of producing any serious graphics effects without considerable help from the programmer. Yes - you can help the Program Generator at work. You can Generate part of a program and write the rest yourself.

The cost of a Program Generator and the value that you get from it will largely depend on what you save by creating your own program requirements. They do vary a lot in price. At the time of writing (1985), for Apple users, "Memdos" Diskette Version costs about £100. A 'Junior Memdos' version (virtually a 'Try-out') costs £15 which is refundable if you buy the full version later. "Codewriter" sold at £185.00 in 1984 and "The Last One", a limited version for £50 and a full version for £185. Extras for this are also available. "Screen saver" about £45, "GhostWriter" etc, are additional utilities which are very handy but not absolutely essential. Please accept that the prices quoted may have been changed. (TLO is available from D.J.'Al' Systems Ltd.)

Some people will not want a Program Generator. Their work may be too specialised. They may prefer to write every comma and colon for themselves. Mostly people would not want to buy one because they don't have enough demand to justify the expense. One should bear in mind that, with a Generator, you need only produce one or two good programs to compensate for your outlay. You then have it at your disposal for unlimited further production.

[To be continued in August HARDCORE, when Tony will cover the way generators work.]

A LOOK AT MEMDOS

Title: MEMDOS
Description: Operating system for Apple series microcomputers
Consists of: 24k ROM card, 1 floppy disc, (or 1 floppy disk), 1 bounden manual.
Authors: Patrick Laffitte & Philippe Nesnidal
Publisher: MEMSOFT Ltd.
Price: £99.00 - diskette for Apple II+, IIe & IIc. £139.00 - 24K ROM card version for Apple II+, IIe, IIc & ///. (Prices include VAT).
Hardware needed: Apple I, Apple //e, //c, /// + Disc drive (for the disk version 64k Apple is required).

By Dave Miller

Review machines: 64k Apple //e, 64k ITT 2020

MEMDOS is a new operating system for the Apple II, //e, //c and /// series computers. It was written in France and there are supposed to be at least 7500 users there already. The 24k ROM card is inserted into any slot and uses a utility and boot-up disc.

MEMDOS provides ISAM (Index Sequential Accessing Method) files of up to ten keys with up to ten subkeys, economy of disc space and a data input and output method which can call up stored screens from disc using single commands from a BASIC program. These can be dispiayed on the screen or printed out as hard copy.

MEMDOS can provide these facilities for one station with floppy discs or for up to sixteen, using a hard disc with capacity of up to 120 megabytes, with almost total compatibility between floppy, hard disc, single-user and multi-user systems.

MEMSOFT claims that MEMDOS provides features which could only be found on minicomputers and mainframes. It also claims that disc access is faster and that BASIC programs are easier to write, maintain and debug because MEMDOS commands replace large sections of BASIC code.

MEMDOS Files.

MEMDOS uses a method called variable buffering to read data from and write data to its files. This is not the method used by Apple DOS. What this means is that certain BASIC variables are associated with the various fields of each record of a file. When a file record is read the variables are set to the contents of the fields by MEMDOS directly; and when a file record is written, the contents of the selected variables are written to the disc.

This has the advantage that the programmer does not have to bother actually to read/write the individual variables which make up a record, but can issue a single read/write command and MEMDOS will read/write them en masse. The disadvantage is that it increases the number of variables used, because the variables associated with MEMDOS files cannot be used for any other purpose.

This is further compounded by the fact that MEMDOS defines the variables associated with a file when the file is created as opposed to when the file is opened. Thus, if you are not careful, you could have more than one file which uses the same variables to act as a buffer with obvious disastrous results.

MEMDOS also manipulates files in a different way from Apple DOS. When files are opened they are assigned what MEMSOFT calls a LOGIC NUMBER. This logic number is used thence on to refer to the file when it is read from or written to. Users of Pascal, FORTRAN and many other versions of BASIC will be familiar with this feature but would call a 'logic number' a 'file identifier'. 'Logic number' is rather an unusual term since it has nothing to do with logic or numbers!

MEMDOS offers two types of data files: DAM files and ISAM files.

DAM Files: Direct Accessing Method (DAM) files are very similar to random access files under Apple DOS. Like random access files, any record can be read or written

simply by giving the record number to be accessed.

MEMDOS allows the programmer to insert new records, update existing records, read existing records and delete old records of a direct file.

ISAM Files: Index Sequential Accessing Method files have no real equivalent under Apple DOS. They provide a very powerful method of organising data to achieve efficient searching and retrieval. Like DAM files ISAM files use selected BASIC variables, defined when the file is created, to buffer the data before they are written or after they are read.

MEMDOS allows you to add new records, update existing records, delete old records and read selected records. The power of ISAM files becomes evident with EXTRACT and NEXT commands. These commands allow you effectively to search the file for records which meet a specified criterion. This is very powerful but there are some limitations:

1. The search can only be done on one element of a multi-element key. Thus if the key consisted of three variables and you wanted to search on two of them then this method would not be able to do that.

2. The search criterion can only be a test of equality as opposed to a range match. Thus you can do a 'does x = 2' type of search but not an 'is x in the range of 3 to 7' test.

3. Only the key can be used for the search criterion.

To get around some of these problems MEMDOS has another type of ISAM file. This file is called a Multikey Access file. In effect it is the same as a normal ISAM file but, when you create the file, you give up to ten accessing methods. Each accessing method defines which elements of the key are to be used to access the file.

Assume that there is a file on the default disc called ORDERDETAILS which contains the detailed information to do with an order. An order would consist of many ORDERDETAILS records each detailing the information for one product ordered by a customer. Assume that it has the following structure:

```
ORDERNO      Order number
CUSTOMERNO   Customer number
DETAILSNO    Order details number
INVOICENO    Invoice number
PRODUCTNO    Product number
PRICE        Product price
QUANTITY     Product quantity ordered
DISCOUNT     Product discount
TOTAL        Total price for product
```

The key consists of ORDERNO, CUSTOMERNO and DETAILSNO. If all the order details for a specific order of a selected customer were required then only the order number and customer number need be supplied as the key. If this were specified as an accessing method then using the EXTRACT and NEXT commands and specifying the correct accessing method all records which match up with this criterion can be accessed.

This, though, is a limited solution to the problems of ISAM access because it still restricts the search to a test of equality on the record key. If, in the above example all the orders for a particular product, whose total price was greater than a specified value, were required MEMDOS would not be able to extract them because the relevant field is not part of the key and because the test criterion is not a simple test of equality. The only resort would be to search through the file using a BASIC subroutine, just as would be done if Apple DOS were used instead of MEMDOS.

In my view this is one of the major failings of MEMDOS. There should be no limitations on what fields are used to search a file. The search criterion should allow for more than just a simple 'does x = 2' test. The use of Multikey Access files in an attempt to get around these problems makes what is a really simple thing quite complicated without really solving anything.

MEMDOS Masks.

MEMDOS offers a very useful method of data input and output. A whole screen, called a MASK, can be defined by using a screen editor utility. Fields can be defined at various locations on the screen and data can be input and output.

Like files, the variables associated with these fields are defined when the mask is created rather than when the mask is opened.

These masks are very similar to the Forms packages available with many database systems, are available under BASIC and can simplify program I/O very considerably. Each field can be given various input and output characteristics which govern the format of the data to be read or written. Masks are very useful and make it quite easy to construct comprehensive programs with very little effort.

MEMDOS' Applesoft BASIC.

MEMDOS' Applesoft BASIC is, in most respects the same as normal Applesoft; but there have been a few modifications. A very nice feature has been added: procedures which are callable by name and are recursive. The CALL and DEF FN commands have been extended to handle these procedures without affecting their normal use.

MEMDOS Utilities.

The MEMDOS boot-up disc comes with various utilities. Most of these are written in BASIC making much good use of MEMDOS' masks. These cover disc copying, mask handling and BASIC utilities. I can not cover all the utilities but I shall mention those of particular note.

A track analysis utility which analyses tracks (!) kept crashing and a full disc copy routine was very slow.

The mask editor was one of the best utilities. It was easy to use and very powerful.

The most unfortunate utility was a program optimiser. It removes REMarks from programs and packs the program into as few lines as possible and it does this very quickly. It also renames all the BASIC variables so as to reduce their names to a maximum of just two letters so as to save space. This seems a very good idea and it works well. There is just the matter of the MEMDOS variable buffers. You will remember that MEMDOS files and masks have variables associated with them defined at their creation. When a program is optimised all the variable names are changed and so nothing works! This really is not the fault of the program optimiser. It is a fault of MEMDOS forcing the definition of file and mask variables when they are created rather than when they are opened. As a result, the variable rename facility is unusable.

[Ed. We understand that a new Utility disk has been brought out since this review was written.]

MEMDOS Error Handling.

This is one of the more surprising aspects of MEMDOS. Not because it is very powerful but because it is exactly the opposite. There are only five errors:

```
1   MASK ERROR (or CTRL-A pressed while
mask on screen)
10  NOT FOUND (record/file not found)
20  READ ERROR
30  DIRECT ERROR & ALREADY EXISTS ERROR
255 END OF FILE
```

Errors are returned in a reserved variable WS. These error messages are appalling: compare them with the messages given by Apple DOS.

MEMDOS Manual.

MEMDOS hath a loose-leaf manual in a plastic-bounden binder. It consists of about 120 pages with both sides typed. The style is quite easy to read without being too patronising or 'gee-whizz'. One thing it lacks is a technical section. For a BASIC programmer this is very important. At least a memory map should be provided but, as it is, the whole of the operation of MEMDOS and the way it uses memory is unknown. This means that the programmer cannot use machine code subroutines because he/she does not know where free memory is.

The manual is okay but, does not compare well with the Apple DOS manual.

Conclusion.

I have doubts about MEMDOS. It does have some very powerful features, such as masks and ISAM files, but it also has some surprising omissions: lower case is not supported and it is impossible to rename a file bar copying it to another file and deleting the first.

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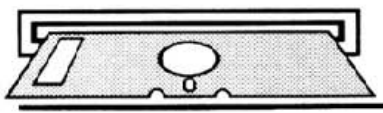

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There is no support for the equivalent of an Apple DOS binary file. This means that machine code has to be held in DATA statements and poked into memory by BASIC. Since no technical detail is given, it is virtually impossible to be sure that the memory you have set aside for your all-important machine code routine is not going to be used by MEMDOS sometime or other.

The limitations to ISAM searching, though, are much more serious. These really do limit the usefulness of MEMDOS. I feel that MEMDOS is too inflexible by far: it does not take too much effort to enable searching to be done on non-key fields and to enable search criteria to include range checking.

Another example of MEMDOS' inflexibility is the defining of file variables at file creation rather than at file opening. This could have disastrous results if two files used in a program happen to utilise the same variable for different purposes. The fact that the MEMDOS' version of Applesoft still only takes the first two characters as significant only worsens the situation.

If MEMSOFT have found it possible to add some rather nice features to Applesoft, in the form of recursive procedures with local variables, one wonders why was not Applesoft updated to what we expect a modern computer language to be?

MEMDOS is very powerful, as microcomputer operating systems go, for data retrieval using ISAM. But, for program development, it is not as powerful as Apple DOS. Neither does it have the access to the thousands of program editors, assemblers and utilities available for Apple DOS.

Who will want to use MEMDOS? Well, the end user who wants an application to fulfil his/her requirements will probably find a suitable program running under Apple DOS. Many database systems for micros are sophisticated enough to offer full Forms facility, unlimited searching of files on key and non-key fields and even program languages of their own: dBase II comes to mind most easily. Methinks that the programmer will also be tempted to stay with Apple DOS because he/she will have many more program utilities to aid coding and, if he/she is thinking of selling his/her program, he/she will have a larger potential market.

The home user who enjoys programming might use MEMDOS if he/she also requires ISAM files and if he/she could afford £100. Since, as with the end user, there is probably a package under Apple DOS in existence which would fulfil his/her requirements I feel only the more adventurous would buy MEMDOS.

I feel that MEMDOS is quite powerful in its field of data manipulation and retrieval but this field is too limited to appeal to all but a minority of the Apple market. Most will be put off by the fact that, either a package to fulfil their requirements exists, or that a new operating system, with a limited user base, has to be adopted.

So, use MEMDOS if you will: it is powerful; but it is almost certain that an application exists under Apple DOS which does exactly what you want and does not give you the trouble of adopting a new operating system.

Now, if MEMDOS were compatible with Apple DOS even if that were limited to sharing the same file format then that would be a completely different thing.

We are grateful to MEMSOFT Ltd., for the loan of the package which was used for this review.

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TIPS, TRICKS & TECHNIQUES

APPLE// HINTS and TIPS by courtesy of Apple Technical Staff

No.1 - AppleWorks and Epsons parallel interface card (MODEL #8132W)

There is a problem with the Epson parallel interface card (model #8132W), it is not recognised by AppleWorks. Hence, when you try to print you will get nothing. Basically the problem is that the Epson interface card does not have the correct ID bytes programmed into it to allow recognition.

There is now a solution (saves waiting for Epson to revise their card), an end-user has managed to modify the AppleWorks 1.1 startup disk to recognise the Epson card, the only drawback is that it will not recognise any other cards. We are trying to get hold of a copy of this disk called the AppleWorks Epson Interface Startup diskette.

No.2 - Brother HR15 Configuration for Appleworks

To use the Brother HR15 daisy wheel with the Apple //e, Super Serial card and AppleWorks, first make sure you have the switches configured as follows:-

Brother HR15 Switch #	SPEC1	SPEC2
1	OPEN	CLOSED
2	CLOSED	OPEN
3	CLOSED	OPEN
4	OPEN	CLOSED
5	CLOSED	CLOSED
6	CLOSED	CLOSED
7	CLOSED	CLOSED
8	CLOSED	CLOSED

Super Serial Card Switch Number	1	2	3	4	5	6	7
Bank SW1	OFF	OFF	OFF	ON	OFF	ON	ON
Bank SW2	ON	ON	OFF	OFF	ON	OFF	OFF

NOTE: A pin to pin cable should be used, and the Super Serial card jumper block turned to point to "TERMINAL".

For Appleworks software configuration see tip No.3

No.3 - AppleWorks Brother HR15 custom printer set up.

The following control codes should be entered into AppleWorks to use the Brother HR15 as a custom printer:-

Character Per Inch codes

4	CPI	ESC [_] [_] (Character in between [and] is a control char.)
5	CPI	ESC [_] [Y]
6	CPI	ESC [_] [U]
8	CPI	ESC [_] [P]
10	CPI	ESC [_] RETURN
12	CPI	ESC [_] [K]
15	CPI	[I] [K] ESC [_] [I] [K] [I]
20	CPI	ESC [_] [G]
24	CPI	ESC [_] [F]

Lines Per Inch codes

6	LPI	[I] [K] ESC [^] [I] [K] [I]
8	LPI	ESC [^] [G]

Boldface, Superscript and Subscript codes

BOLDFACE BEGIN	ESC [W]
BOLDFACE END	ESC [X]
SUBSCRIPT BEGIN	ESC [U]
SUBSCRIPT END	ESC [D]
SUPERSCRIPT BEGIN	ESC [D]
SUPERSCRIPT END	ESC [U]

Underlining (Note: Printer has start/stop underlining commands)

START UNDERLINING	ESC [E]
END UNDERLINING	ESC [X]

This configuration has been tried by the Apple Technical Support team and seems to work fine. The serial card used is an Apple Super Serial Card.

No.4 - Appleworks - Imagewriter double linefeeds

If the Imagewriter is set up to receive 7 bit data (SW 1-5 CLOSED) and Appleworks sends a linefeed, the printer will double space. This occurs because Appleworks send two linefeeds, one in High Ascii (8A) and one in low Ascii (0A). When in 7 bit mode, the printer ignores the 8th bit and therefore converts the high Ascii (8A) to a low Ascii (0A) line feed, and performs them both. This means if you select 6 lines per inch, you actually get 3 lines per inch due to the extra linefeed. If you select 8 lines per inch you get 4 lines per inch. If the printer is set for 8 bit data (SW 1-5 OPEN), then the low Ascii linefeed is ignored and you will actually get 6 and 8 lines per inch as you should.

No.5 - AppleWorks and Third Party Interface Cards.

It has come to our attention that the is a problem using AppleWorks version 1.1 with some third party interface cards. The problem is notice by a "80N" being printed at the start of each document printed. This is cause by AppleWorks sending Control-I 80N to initialise an Apple Parallel Interface Card (the Super Serial Card also traps this code although it does not use it). some third party interface cards do NOT recognise this code as being valid.

The solution is to use AppleWorks Version 1.2 which allows you to specify what this initial control sequence should be (if anything). AppleWorks V1.2 is NOT an enhancement to V1.1, it has been produced in order to solve a few problems in the above area and with each of it's three functions. It is not necessary to upgrade existing users unless they find a 'BUG' with V1.1 and V1.2 fixes it.

AppleWorks also outputs all data with the most significant bit of each character set low, this has been know to cause some problems with interface cards not recognising "VALID" control sequences, the only solution is to contact the manufacturer/distributor of the card and see what they can suggest.

No.6 - AppleWorks Spreadsheet @IF function - logical AND, OR etc.

In AppleWorks Spreadsheet section, the @IF function does not allow the use of logical AND, OR, etc. The first argument must be a single logical comparison (e.g. @IF(C14>0,)). Suppose you wanted to use @IF to check if two conditions were true, for example, C14>0 AND D27<100. You can do this by setting up two "dummy" cells (Z1 & Z2 in this example). Type: @IF(C14>0,1,0) into Z1, type: @IF(D27<100,1,0) into Z2. Now you can check on both conditions with a single @IF statement.

C14>0 AND D27<100 would be represented by @IF(Z1+Z2=2,)
C14>0 OR D27<100 would be represented by @IF(Z1+Z2>0,)

No.7 - AppleWorks Spreadsheet using Epson FX80 for 136 characters per line.

There is a problem with the Epson FX80 and Appleworks spread sheet. When you try to print a spreadsheet model with characters per inch selected to be 17, the system tells you it will be able to print 136 chars per line. However, on every Epson tried this is not the case, a carriage return is added in after 132.

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RESPONSE

The problem is the Epson, when you select to use 17 CPI with FX80's they automatically assume that you want a right margin of 132 characters, the solution is to use the "SPECIAL CODES" section of "PRINT OPTIONS" and enter the following:-

Escape > Escape Q Control-H Escape =

The Escape > forces the Epson to see each character with the eighth data bit held high. Therefore when Escape Q Control-H is sent the system receives and interpretates the control-H as being ASCII code 136. Escape = simply forces the eighth bit back to normal.

No.8 - AppleWorks 1.1 setting Tab that will not clear

You can set a tab stop at the far right hand corner of the screen, after the last = sign, but you can not delete it

RESPONSE

This bug has been fixed in AppleWorks Version 1.2

No.9 - AppleWriter ProDOS version and Parallel Interface Card

When using the latest version of AppleWriter //e,//c and the Apple Parallel Interface card you must initialise the card with the command sequence Control-I 80N, you may either do this by entering it at the start of each document (use control-V to insert control chars), or you can enter it as the 'Top Line' print parameter, to do the latter follow below instructions -

1...From the editor part of the package press control-P
2...Enter ? followed by carriage return.
3. Enter TL/[I]80N/ ([I] indicates a control-I)

Thats all there is to it....you may save this configuration to disk with the option provided on the additional functions menu.

By the way, the main problem seen if you do not initialise the card is that underlined words come out like t_h_i_s_!_!_!_ <- most annoying???

Also please note that sending control-I 80N to the Apple Parallel interface card has got very little to do with the number of characters per line sent out by the card - it simply stops the card echoing characters to the screen and ensures all characters (apart from the command character) are actually sent to the printer.

If you have another make of parallel card exhibiting the same problem and the above does not work look in the manual for the correct ctrl codes.

No.10 - //c System Utilities Single drive copy

There is a known problem with the single drive copy routine using System Utilities on the Apple //c. The problem is that if a file requires more than one read to copy a file then the copy will not work. There is no fix, the only solution is to use the copy program "COPYA" as supplied on the old DOS 3.3 Systems Master.

PAGE FLIPPING

By R.C.Lowe

If you want to animate a complex hires image it is vital to be able to rapidly and cleanly switch between hires pages . This routine does that simply and without any fuss.

```
 10  REM  FLIP PAGE
 20  IF PN = 1 THEN  POKE  - 16304,0:
     POKE  - 16302,0: POKE - 16300,0: POKE
     - 16297,0: POKE 230,64: HCOLOR= 0:
     HPLOT 0,0: CALL 62454:PN = 2: RETURN
 30  IF PN = 2 THEN  POKE  - 16304,0:
     POKE  - 16302,0: POKE - 16299,0: POKE
     - 16297,0: POKE 230,32: HCOLOR= 0:
     HPLOT 0,0: CALL 62454:PN = 1: RETURN
```

As an example of how it works the following program rotates a simple hires cube , other shapes can easily be entered in DATA statements but because there is no true perspective calculation any complex shapes would be distorted .

```
 10  REM  DATA FOR A CUBE
 20  DATA -1,-1,-1
 30  DATA -1,-1, 1
 40  DATA  1,-1, 1
 50  DATA  1,-1,-1
 60  DATA -1,-1,-1
 70  DATA -1, 1,-1
 80  DATA -1, 1, 1
 90  DATA  1, 1, 1
100  DATA  1, 1,-1
110  DATA -1, 1,-1
120  DATA  1, 1,-1
130  DATA  1,-1,-1
140  DATA  1,-1, 1
150  DATA  1, 1, 1
160  DATA -1, 1, 1
170  DATA -1,-1, 1
180  HOME
190  REM  CLEAR BOTH HIRES SCREENS
200  REM  WITHOUT SHOWING THEM
210  HCOLOR= 0
220  HPLOT 0,0
230  POKE 230,64
240  CALL 62454
250  POKE 230,32
260  CALL 62454
270  REM  SET UP VARS
280  REM  NOTE VALUE OF PI!
290  PN = 1
300  PI = 3
```

(This grossly inaccurate value of pi can be used as there is no accumulative error)

```
310  XM = 139
320  YM = 95
330  N = 16
340  I = 5.625
350  REM  MAIN LOOP STARTS HERE

360  D = I + A
370  D = D * PI / 180
380  C =  COS (D)
390  S =  SIN (D)
400  RESTORE
410  HCOLOR= 3
420  HPLOT XM,YM
430  FOR I = 1 TO N
440  READ X,Y,Z
450  X = X * 32
460  Y = Y * 32
470  Z = Z * 32
480  XN = X *  COS (D) + Y *  SIN (D)
490  YN =  - X *  SIN (D) + Y *  COS (D)
500  ZN = Z
510  IF I = 1 THEN  HPLOT XN + XM + (ZN /
     4),YN + YM + (ZN / 4)
520  HPLOT  TO XN + XM + (ZN / 4),YN + YM
     + (ZN / 4)
530  NEXT
540  GOSUB 580
550  A = A + 5.625
560  GOTO 360
570  REM  FLIP PAGE
580  IF PN = 1 THEN  POKE  - 16304,0:
     POKE  - 16302,0: POKE - 16300,0: POKE
     - 16297,0: POKE 230,64: HCOLOR= 0:
     HPLOT 0,0: CALL 62454:PN = 2: RETURN
590  IF PN = 2 THEN  POKE  - 16304,0:
     POKE  - 16302,0: POKE - 16299,0: POKE
     - 16297,0: POKE 230,32: HCOLOR= 0:
     HPLOT 0,0: CALL 62454:PN = 1: RETURN
```

The rotational formula used by this program is as follows. For each point , D is rotation in degrees, X and Y are the coordinates of the point , XN and YN are the coords after the rotation . The rotation is about the point 0,0.

```
PI = 3.141592653589794
D  = D * PI / 180
XN = X *  COS (D) + Y *  SIN (D)
YN =  - X *  SIN (D) + Y *  COS (D)
```

FURTHER FORTH

A FRUIT-MACHINE SIMULATION IN FORTH

Apple][

By Gil Filbey

The purpose of this programme is two-fold. It is partly to show how Forth works, as a follow up to a previous article by Hugh Dobbs, and partly as an aid to teaching probability to students.

Typical display of 'fruit'

```
*********
*       *
* 7 3 0 *
*       *
*********
```

In the various situations which arise in the course of a game the relative advantages of P, N, and J (standing for PLAY, NUDGE and JOG) can be worked out by the laws of probability. I now give the code and then describe how it works.

```
( 200 'fruit' m/c )     : FRUIT ;

: CURSOR  12 0 VHTAB ;
: STAR 42 EMIT ; ( 42 is ASCII for '*')
: STARS 0 DO STAR LOOP ; ( n---)
: BOX 6 16 VHTAB 9 STARS ( top line)
     10 16 VHTAB 9 STARS ( bottom line)
      7 16 VHTAB STAR 8 16 VHTAB STAR
      9 16 VHTAB STAR 7 24 VHTAB STAR
      8 24 VHTAB STAR 9 24 VHTAB STAR
      ( sides )
  CURSOR   ; ( final cursor pos.)
: PLACE ( n---) 2* 16 + 8 SWAP VHTAB ;
( assigns a place in the box in pos.
n = 1,2 or 3 )
: THROW RANDOM 7 AND ; ( random number
between 0 and 7 inclusive )
4 ARRAY 'FRUIT' ( holds current values
of the 'fruit' )
: PLOY DUP PLACE THROW DUP . SWAP
'FRUIT' ! ; ( put it in the box and
store it in the array )
-->

( 201 'fruit' m/c )

: WAIT 0 DO 1000 0 DO LOOP LOOP ;
( n-----  variable delay )
: WIPE CR 15 11 DO I 0 VHTAB 20 SPACES
  LOOP CURSOR     ;
 ( Rub out the commands & place cursor)
: RUNDOWN 8 1 DO DUP I 3 * WAIT PLOY
  LOOP DROP CURSOR     ;
: 3OFF 4 1 DO I PLOY LOOP ;
: 2OFF 4 2 DO I PLOY LOOP ;
: 1OFF 3 RUNDOWN ;
0 VARIABLE CHECK
: START 0 CHECK ! HOME BOX
 8 24 18 DO DUP I VHTAB 0 . 2 +LOOP
 DROP WIPE
 4 1 DO 16 I 'FRUIT' ! LOOP ;
( initialise the count and zero the box)
-->

( 202 'fruit' m/c )

: CHECKOUT
  1 'FRUIT' @ DUP 2 'FRUIT' @ = SWAP
  3 'FRUIT' @ = AND ( all three equal?)
  IF CHECK @ DUP 1 = ( out in one )
    IF CURSOR
     ." THAT WINS THE JACKPOT!! " DROP
      BELL 2 WAIT BELL 2 WAIT BELL
    ELSE ." THAT WINS IN " .  BELL
    THEN 0 CHECK !
  THEN ;
: LIMIT? CHECK @  5 < ;
: GETOUT ( only allowed 5 failures )
 ." FIVE'S THE LIMIT "
 BELL BELL BELL  10 WAIT START  ;
: PLAY 50 0 DO 3OFF LOOP 25 0 DO 2OFF
  1 WAIT LOOP 1OFF WIPE ;
: P ( ---- spins all three) LIMIT?
 IF CHECK INC WIPE PLAY CHECKOUT
 ELSE GETOUT
 THEN ;  -->


( 203 'fruit' m/c )

: N ( n---spins 1,2,or3 ) LIMIT?
 IF CHECK INC WIPE RUNDOWN       CHECKOUT
 ELSE GETOUT
 THEN ;
: J ( n---maybe 1 up or 1 down) LIMIT?
IF CHECK INC WIPE DUP PLACE RANDOM 1 AND
 IF DUP 'FRUIT' INC
 ELSE DUP SWAP 'FRUIT' DEC
 THEN 'FRUIT' @ 7 AND . CURSOR CHECKOUT
ELSE GETOUT
THEN ;

START      ;S  terminates interpretation.
```

The word START at the end of this screen will not compile but will execute just as if it had been typed at the keyboard. Comments in brackets are ignored by the compiler. The convention (n-----) after a defined word indicates that it needs an input operand in order to work. The random-number generator I use is one In which 13 bytes are added, mod 256, to give a random byte which is then included in the list for the next addition. This is done in the Forth assembler for speed. INIT initialises it. RANDOM runs it.

For the purpose of teaching probability other operations besides P N J can be added to make the strategy tougher.

Forth, in this country, is promoted by the Forth Interest Group UK. To find out more about it get in touch with the secretary:

Douglas Neale
58 Woodland Way
Morden
Surrey

PEEKS, POKES & CALLS

FOR THE APPLE II S

This is a compiled list of Pokes, Calls & Peeks, obtained from Mildenhall Computer Club by Richard Boyd. We are grateful to the members of the club. Technical material for publication in Hardcore is always welcome.

POKES

POKE 28,n - changes the colour mask byte to n
POKE 32,n - sets left screen margin to n. (0=left 39=right)
Does not change width, change width first to keep strange things from happening.
POKE 33,n - sets width of screen to n.
POKE 34,n - sets top margin to of screen to n. (0=top 23=bottom)
POKE 35,n - sets bottom margin to n. (0=top 23=bottom)
Don't set bottom higher than top.
POKE 33,33 - removes unnecessary spaces from listed lines.
POKE 36,CH - moves the cursor to a position that is CH+1
Gives greater range than "tab". Insure n isn't greater than the width given by POKE 33.
POKE 37,CV - moves the cursor to the vertical position set by CV.
(0=topmost 23=bottom most).
POKE 50,128 - makes catalogs invisible.

POKE 50,255 - set white on black(normal).
POKE 50,127 - set flashing mode.
POKE 50,637 - set inverse mode.

POKE 51,255 - prompt character ="*"
POKE 51,62 - prompt character =">"
POKE 51,93 - prompt character ="]" [- ???]
POKE 51,93 - prompt character ="!"

POKE 214,215- makes program RUN for any direct command.
POKE 216,0 - clears ERRFLG so that normal error messages wil occur.
POKE 230,32 - turns on page 1 of high-resolution graphics.
POKE 230,64 - turns on page 2 of high-resolution graphics.
POKE 1011,224 causes <RESET> to reboot.
POKE 2049,1 - makes the first line number LIST repeatedly.
POKE 40514,52 allows for a binary boot program.
POKE -16368,0 clears keyboard strobe. (should be done after reading keyboard)
POKE -16304,0 switches display mode from text to graphics without clearing the graphics display. Depending on the other 3 switches the mode may be low-res, high-res 1 or 2.

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```
POKE -16303,0  switches display from graphics to text without scrolling
               text window.
POKE -16302,0  switches from mixed-screen graphics to full screen graphics
POKE -16301,0  switches from full-screen graphics to mixed screen + text
               (four lines of text at bottom of screen)
POKE -16300,0  switches from page 2 to 1 without clearing screen.
POKE -16299,0  switches from page 1 to 2 without clearing screen.
POKE -16298,0  switches the page for high-resolution to same text page.
POKE -16277,0  switches the page for text to same high-resolution.

POKE 44505,234:POKE 44506,235 - exposes deleted files in catalog.
POKE 1014,165 :POKE 1015,214  - makes & = list.
POKE 1010,102 :POKE 1011,213:POKE 1012,112 - makes RESET = RUN.
POKE 1010,0:POKE 1011,224:CALL$-116⁹ - CLEARS memory upon RESET.
```

PEEKS

```
PEEK (37)    -  cursors vertical position.
PEEK (36)    -  cursors horizontal position.

PEEK (-637) -  If 255 then APPLE IIe, if 233 then APPLE II+, if 234 then
               FRANKLIN or ?????.
PEEK (-16384)  if <128 then no key has been depressed.
PEEK (-16287)  reads game button # 0. If >127 then button pressed.
PEEK (-16286)  reads game button # 1. If >127 then button pressed.
PEEK (-16285)  reads game button # 2. If >127 then button pressed.
```

CALLS

```
CALL -868    -  clear from cursor to right margin.
CALL -958    -  clear from cursor to bottom.
CALL -676    -  bell, wait for RETURN.
CALL -679    -  wait for RETURN.
CALL -756    -  wait for key press.
CALL -922    -  move cursor down.
CALL -998    -  move cursor up.
CALL -1008   -  move cursor left.
CALL -1184   -  clear screen and print APPLE II.
CALL -1438   -  pseudo-RESET.
CALL -62454  -  fills hires page with current colour mask."
CALL -936    -  same as HOME.
CALL -926    -  issues a carriage return and line feed to screen.
CALL -924    -  issues a carriage return.
CALL -922    -  issues a line feed. (same as CTR J)
CALL -912    -  scroll text up one line. (top line is lost)
                Characters outside defined window are not affected.
CALL -198    -  beep the speaker.
```

MACTIPS

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Batteries

The following batteries can be used as replacements, they are generally
used in photoflash units.

EveryReady #523-BP
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ImageWriter new cable (Results in loss of characters)

There are now two types of cable being shipped with the accessory kits (one version with more pins than the other), both DO work.

However, one Imagewriter switch needs to be set differently from the factory setting. The switch is 2-3, it needs to be in the CLOSED position. This selects XON/XOFF handshaking.

With switch 2-3 CLOSED either cable will work.

MacWrite recovery of damaged documents

Here is a possible solution to the problem of accessing a damaged MacWrite file using MS-Basic.

```
10 OPEN "FILENAME" FOR INPUT AS #1
20 OPEN "CLIP:" FOR OUTPUT AS #2
30 WHILE NOT EOF(1)
40 INPUT #1,A$
50 PRINT #2,A$
60 WEND
70 CLOSE #1
80 CLOSE #2
```

The MacWrite document will be stored on the clipboard. If you next enter MacWrite and select paste you should find the information previously unaccessable.

Files jumping from folders or even lost.

You may have heard of users putting files into folders and when they re-open the folders at a later date the documents are no longer present. They have either disappeared altogether (though still available using "Open" command) or they have all moved into one folder.

The major problem is that they can not be deleted or copied without re-opening and saving first, and also any files that are not listed in a file or folder are not copied to a back up disk. The problem has been found that these folders that lose files are coming from the old version of MacWrite (Version 1.0) which has an old version of the finder on. If this problem occurs ask your user to throw away the folders that lmse files and the source folder that he duplicates from, and copy a new folder from a disk that does not exhibit the problem and is FINDER version(1.1g).

Daisy Wheel Printer Connection Kit - Lines per Inch

You may have noticed that when printing from MacWrite to the Apple Daisy Wheel Printer that the no. of lines per ingh is just over 5, but when you print from the Daisy Wheel Printer connection kit software you get 6 lines per inch printed.

The solution is to use MacWrite version above 3.0 and select the 6 lines per inch box on the tab ruler at the start of a document.

MacWorks Screen Display Why is it out of proportion?

As you alreadt know, the reason for the phenomenon is because of the pixel shape difference. The Macintosh uses square pixels while Lisa uses rectangular pixels. This accounts for the shape difference. And since the Lisa pixel is longer vertically than the Macintosh pixel you get ovals when drawing circles in MacWorks, you will get circles on the screen but circles on a print-out. With MacPaint you could use the 'CONSTRAIN' by holding the shift key while drawing circles, this will ensure horizontal and vertical dimensions of the circle drawn are the same. But remember the circle will be oval on the screen.

To change the shape of the Lisa pixels to square would require a major hardware change so do not look for it to happen.

• Repairing Mac Disks

If a Mac disk is damaged and you get ID ERROR = 02 sometimes the following works. Insert the disk as if booting it but hold down the Command and Option keys until the system either boots properly or ejects the disk. If the disk ejects then the fix does not work. On a data disk the following can occur. When you are on the desktop and you insert the data disk it ejects it, however from within the application (e.g. MacWrite) the files are listed and can be read. If this is the case then try the above key combination after inserting the disk. The disk will spin for a while then stop, but take heart, after a short time either the disk will be fixed or it will be ejected.

• MacPaint Pictures pasted into MacWrite, Printing Quality.

MacPaint pictures pasted into MacWrite will only print out in standard resolution regardless of whether you selected standard or high resolution.

• Pitfalls

Would like to forewarn you of a nasty pitfall:

Avoid ejecting a diskette before saving your document and using the diskette in another system. When you reinsert the diskette to save your document the disk is no longer recognised. There is no way to terminate the save once initiated other than powering off your system.

• Buzzbox (Modem) Connections

Macintosh (DB9)	Buzzbox (Pins are labelled)
1	Ground
5	TX (Transmit Data -)
7	CD (Data Carrier Detect)
9	RX (Receive Data -)

You may like to note that pins 1 & 3 on the Macintosh are bridged already on the inside, pin 3 is commonly describe as signal ground and pin 1 is commonly describe as frame ground (see the "APPLE INTERFACE MANUAL" for the full Macintosh pin outs).

P.S "CD" on the buzzbox is an output, it is raised as soon as the buzzbox has a carrier (i.e Data communication line established). "TX" on the buzzbox is an input, characters arrive from the terminal into this pin. "RX" on the buzzbox is an output, characters are transmitted from this pin to the terminal. "GROUND" is a signal ground.

• MacWorks and the Parallel Apple Dot Matrix Printer

Does MacWorks support printing on the Dot Matrix printer through the Parallel card on a Lisa or do you have to use an ImageWriter?

RESPONSE

MacWorks unfortunately will not support any device attached to a Parallel port other than the Profile (using "Hard Disk Install"). Perhaps it would be an idea to use the Parallel DMP in conjunction with a serial-parallel converter, and plug it into the serial port and treat as an ImageWriter.

Miracle Technology market a serial to parallel converter for the Apple //c which with some modification (on connectors) could probably be made to work on the Lisa. The Apple Dot Matrix (Parallel) printer has fairly similar firmware to the ImageWriter and I should imagine would work.

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BEGINNER'S COLUMNS

INT IT A PROBLEM

By John Sharp.

Sorry about the pun, but I hope I drew your attention to a problem when converting real numbers to integer ones in APPLESOFT. (Originally, Roy Woolhouse wrote in, pointing out a problem he had noticed when doing just this.) It is something to be very wary when you are programming.

If you are working with APPLESOFT and some of the numbers you use are integers, it is often best to define these as integer variables, rather than real ones. An example might be a position on the HI-RES screen, which can only have an integer value. The procedure for assigning an integer variable is:-

```
10      Let T%=190
```

rather than

```
20      Let T=190
```

No doubt some of you will write in and give some better examples. It is always difficult when you are trying to come up with good examples when you are writing; they always occur when you have written the article.

The APPLE then doesn't have to go through the routine to convert it into a coded real variable, which saves time and so makes your program run faster. If you are going to use a number frequently, then you should store it as a variable, because all it has to do is find it, rather than process it. This can particularly help to increase the run time of the program if it uses lots of numbers (or strings, come to that) constantly.

Sometimes you only want to print the integer part of a number, and then you can do it in two ways:-

```
10      PRINT INT(128/34 + .75)  or

10      H%=INT(128/34 + .75):PRINT H%
```

Now over to Roy's DEMO program to illustrate the problem.

```
10  REM DEMO OF PROBLEMS WITH 'INT'
20 K1=2.6:K2=0.2
30 PRINT "I","I%","INT("
40 N=2:GOSUB 100

50  N=12:GOSUB 100
60  END
100 REM SUBROUTING USING I,I% and INT
110 I=K1 * N - K2
120 I%=K1 * N - K2
130 PRINT I,I%,INT(K1*N-K2)
140 RETURN
```

A RUN of this program will produce the following printout;

```
I         I%        INT(
5         5         4
31        30        30
```

Now, try altering the value of K1 to 2.7 and printing out the result. This time the result is right. So it can be right sometimes but not always. Roy suggested printing I-I% and found the result .999999993 when K1 was 2.6.

This is the clue to why it went wrong; the value of I the machine has come up with is not quite 31 and if it is 30.999999993, then the integer part of this is 30. Roy has an ITT and thought it was due to that machine, but it is due to the way the decimal numbers are converted to binary and back by the microprocessor, and so could happen on any machine, not just the APPLE. The APPLE is good in this respect in fact in that the result is printed as 31 in the first column and not 30.999999993.

So, how do we overcome it? Well, quite simply by adding a small number to the result before converting it into the integer value.
Thus, if we alter lines 120 and 130 to

```
120 I%=K1*N-K2+.00005
130 PRINT I,I%,INT(K1*N-K2+.00005)
```

all should be well.

There is one point I would like to add which is a hobby horse of mine, although I think there is an exception in this case, because I is the initial letter of Integer. Please don't use I as a

variable in a program; so many printers have an I and a l looking similar, and it is so difficult to debug a program when you have typed it in wrong. It is just as valid a criticism, if you use O and 0. Some printers are now printing the 0 with a line through it but there are an awfully large number around that aren't. The worst problem with the I/l case is with variables, such as K1 and Kl. Even though it may be clear on close inspection, it usually isn't when your mind is on typing it in.

LOOPING THE LOOP.

I had intended to write about loops, before Roy's point came in, so I will make a start and pose a problem. And if there are any problems you have solved or need some help with, I am going to need some ideas for future columns. With more on loops in the next issue, have you any neat solutions, or any particularly sticky problems?

The simplest loop uses the dreaded GOTO, for example;

```
10 INPUT "TYPE IN A NUMBER":A
20 PRINT "ITS SQUARE IS ":A*A
30 GOTO 10
```

This is an endless loop, and once the program is running, the only way to get out of it is to hit CTRL-C. You should put a get-out line by means of a particular test on the input which the user knows how to break the sequence.

The most familiar loop is the FOR-NEXT LOOP. Consider the following:-

```
10 TEXT:HOME
20 PRINT CHR$(7)
30 FOR N = 1 TO 1000
40 PRINT "A";
50 NEXT N
60 PRINT CHR$(7)
```

This has a FOR-NEXT LOOP, which simply prints the letter A a large number of times. The lines 20 and 60 sound the speaker so that we can time the program.

This program could have been written with another type of loop using GOTO.

```
10 TEXT:HOME
20 PRINT CHR$(7)
30 N=N+1
40 PRINT "A";
50 IF N < 1000 THEN GOTO 30
60 PRINT CHR$(7)
```

Sometimes you are forced to write this way, but in this case it is definitely not the way to do it. I measured a time of under 3 seconds for the FOR-NEXT loop and 11 seconds for the GOTO loop -- about 4 times as long.

As I said I will develop loops more next time and so in the meantime, with the above illustrations as clues, here is a problem for you to think about. Suppose we wish to print the letters of the alphabet in pairs, so that the letters an equal distance from each end are together (e.g. AZ, BY etc.). How do you set up loops to do it?

THE HOTLINE

By Chris Williams.

It's now a few months since I took over the co-ordination of the Hotline service and perhaps the most surprising thing is that members make so little use of it. It may be that this is due to a lack of information about how the service operates hence this article.

The Hotline operates from 7pm to 9pm on Monday to Friday and members should wherever possible ring during those hours. As the Hotline co-ordinator, I am prepared to take calls outside of those hours but, of course, if it's not convenient you may be asked to ring at another time.

It should be understood that the Hotline service is manned on a voluntary basis for the use of Basug members only and when you call you should be prepared to give your name and membership number.

The intention of the Hotline is to give members a source of information and help for problems that come up when using

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Apple computers and the various software and hardware available. To this end a list of volunteer helpers is maintained with expertise in various areas of Apple computing. When calls are received and the problem is fairly straightforward an answer can often be given immediately but if the query requires expert knowledge then a volunteer's name and telephone number is given to the caller. Help cannot be guaranteed, but in most cases positive advice can be offered, or at least a suggestion of where to look for the answer.

Whilst problems of all types are dealt with, members can also use the Hotline to obtain opinions and advice about hardware and software for particular applications, with the assurance that the opinions are freely and independently given by a fellow member who has probably used the item in question.

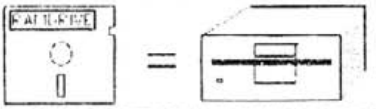
Many of the queries received are not of a technical nature but to do with the various activities of Basug and I do try to keep information on such things as courses, meetings etc. In this respect, Local Groups have been the subject of a number of enquiries and it would help if any member running a Local Group could give me details to pass on to interested members ringing the Hotline. I have in one instance tried to bring members together to form a Local Group where one did not exist previously and this could be a useful service to members who feel they would like to meet with others in their area.

If you feel that you would like to offer yourself as a volunteer helper on the Hotline and have some particular expertise, then by all means contact me and go on the list. For most areas of Apple computing we already have adequate cover but volunteers are required as follows:-

1) Volunteers north of Birmingham. Is there anyone there?
2) Languages Pascal, Logo, Forth etc
3) Hardware Apple III, Mac, hard disk drives.

If you do volunteer to go on the Hotline it is unlikely that you would get more than one or two calls a month indeed depending on the subject and your location you may rarely get a call.

RAMDRIVE e/c



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by RICHARD KRAEMER

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Reviewed in Apple User and Hardcore August 1984.

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SOFTWARE REVIEW.

Title: **PC to Mac and Back**
Producer: Dilithium Press
Price: £130 +vat
Hardware Required: Macintosh 128 or 512, or MacXL and IBM PC
Publisher: Holt Saunders, 1 St. Anne's Road, Eastbourne, BN21 3UN
Software By: P H Mackie & J G Griffin.
Reviewed by Peter Trinder

PC to Mac and Back, the title of this package, very aptly sums up its purpose. In one box is all the gear to transfer data between the two families of Computer. You can also use the software supplied to talk to other computers via RS232 link or Modems.

PC to Mac and Back, (PCMB), comes in a stout plastic box and contains a 3.5" disk with the Macintosh communications program, a 5.25" IBM disk with the IBM communications program, a manual, a cable to connect the two computers and a null modem link. It is a complete kit.

The Manual consists of a softback book of about 100 pages, and starts with a couple of chapters introducing telecommunications and the background to file transfer between computers. Next there are separate chapters describing each of the two pieces of software, with full details of the setting up and use of each one. The manual continues with a full guide to using modems. Here the British User will find that the authors describe Hayes protocol modems which are not yet readily available in the UK. (This situation will very shortly change when at least three well known UK modem makers release products conforming to Hayes Protocol). Next comes a chapter on Error correction methods used for transferring files. This is a useful discourse on the subject. However because the Macintosh is designed to appeal to those of us who don't want to know an Ascii from a Zebra, this chapter could be a little heavy going. The two final chapters discuss using a Microsoft Mouse on the IBM and the Conversion Programs supplied with the Package. To round off the manual there are 4 Appendices covering a) Disk Preparation, b) Quick Reference Guide including error messages, c) Cabling, and d) Resources [just a few names and addresses of US hardware suppliers] plus a six page glossary of common communication terms.

The Macintosh Program is a straight forward easy to use communications program. Baud rates can be set from 110 to 9600 but being American there is no provision for 1200/75 for Prestel use. (You will have to use the 300 Baud Prestel Computer if you need access to this service). The programs can only transmit an 8 bit word length there does not appear to be a facility for changing from 8N1 to 7E1. There are selections in the menus for receiving plain text files with no error checking, or by xmodem protocol. I tested this software with the Apple// and it all seemed to work smoothly. I used ASCII Express on the Apple// and had no problems transferring data, apart from one small quirk that I have discovered that has nothing to do with this particular software. I was running a Hard Disk from the communications port of the Mac and did not power down before starting up the PCMB. I just pulled out the Hard disk connector and replaced it with the link to the Apple][. I had a handshaking problem and it seems necessary to switch off to reset the communications chip of the Mac, if it has been set to drive a hard disk.

Running the PCMB program, the first thing I noticed, was that there is no automatic saving of incoming text to buffer which is the case with MacTerminal. You have to open a file to do this. Not a great problem but if you are used to MacTerminal it is something to be remembered. There are no Macro facilities or auto dialing in the software. If you have a smart modem which will auto dial then it can be controlled from the keyboard.

The IBM software was not tested but the description in the Manual showed it to be as comprehensive as the Macintosh version. It will run on IBM PC, XT, PCJr, with one or two drives, 128k M DOS 2.0 or 2.1. It has been tested on a Compac.

Neither of the programs are copy protected so it is easy to back-up your disks, and

equally easy to install the program on a Hard disk.

The manual explains how to transfer Multiplan files in SYLK format. It also show you how to transfer Wordstar files and includes on the IBM disk a conversion program that strips the Wordstar commands from the text files before transmission.

In June 1985 Dilithium are going to release an unattended communications module which will provide for sending and receiving without the operator being present as well as setting up an unattended transmission at a given time. Auto dialing will be included in this release.

Who is this package for? Anyone who has got a Mac and an IBM but has not yet bought a Communications program will find it a complete kit in a box at a reasonable price. However for someone who already has MacTerminal and does not have the need to talk directly with an IBM, this is probably expensive, for apart from a cable, the only new item is the IBM software. I don't know what IBM communications software costs but it is probably a similar amount to PCMB.

BOOK REVIEWS

The Database Primer, 149p., pbk. By Rose Deacon
Century Publishing Co. Ltd., 1983.
£6.95
ISBN: 0 7126 0209 7

By Danielle R. Bernstein

This small book, put out by the publishers of Personal Computer World, is supposed to be a breezy introduction to Data Bases. Ms. Deacon aims to tell you what a data base management system does, what it can do for you and what features to look for before you settle on a package. Ideally you would read this before you went out and committed your hard earned money and found that it did not have the right features or was too complicated to use.

Actually the book is a conglomeration of all the author thought she could put into it and get away with. It was written under a fallacy that because micros are becoming easier to use, anyone who can use

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them can write a book about them. Side trips are taken into number bases, speech recognition and ASCII codes.

In the introduction, she deplores the level of documentation and states that it took her a year to find out how to use macros. A year! I don't know if this is supposed to make the reader more sympathetic to the book but I hope that she wasn't consulting or writing software for others during that year.

In defining elementary concepts, she does not differentiate between a data base and a data base management system. She could have put the novice micro user at ease by explaining that data bases were around before computers. A data base is a repository of information arranged for easy retrieval; a telephone book is a data base and so was the Domesday book. A data base management system (DBMS) is the software that allows you to manipulate the data. A manual system also has a DBMS; the set of procedures that let you get at the data.

She describes unprocessed data like unprocessed food; raw and in its natural state. (That sounds quite good to me. Does that mean that processed data is like junk food?) She also shortens Data Base to the Base; quite annoying and hard to read.

The chapters on using a DBMS for retrieving, selecting and sorting data are written without reference to a particular package or meta-language. She describes the operations in words and just shows the results. It would be hard for a beginner to appreciate how simple commands can be used to perform powerful operations if none are illustrated.

Transferring data to other programs such as word processors and statistical packages is a common activity. It is important that a new user realizes that this can be done. Unfortunately, Ms. Deacon gets bogged down in the technicalities of HEX, ASCII and removing special characters needed by the DBMS package but confusing for the receiving software. At one point, she even gives us two versions of a Pascal program to do this, including one for the PET computer.

A book not be bothered with. I felt like I was reading a patchwork quilt.

The Endless Apple, 258p. pbk. By C. Rubin.
Microsoft/Penguin, 1984.
£14.95.
ISBN 0 14 087 131 4

By Peter Baron.

Subtitled 'How to maintain state-of-the-art performance on your Apple II and IIe', this fairly hefty paperback forms a substantial general reference and user guide. It contains descriptions of specific products, with general information and advice about the major categories of hardware and software available, as well as a little philosophy about the likely future of the Apple II family of machines.

After a short introduction, three chapters are devoted to the major groups of productive software, wordprocessing, spreadsheets and database managers. Both CP/M and programs especially written for the Apple are described. Inevitably, Applewriter II and IIe, Visicalc, dBase II and DB Master are mentioned, but the treatment is comprehensive, so the reader will also find comments about ProDOS, 80 column and Z80 cards, CPU's, enlarged RAM and hard disks. Naturally, integrated packages like Appleworks, The Incredible Jack and Jane are also covered, but so is the possibility of integrating separate programs.

There is a section on communications which, after a brief developmental history, gives general advice on software, with more detail about ASCII Express Professional, Transcend and Era 2, and information about modems and networking. A chapter on graphics follows a similar plan, with information about software, input devices like the mouse and light pens, as well as output to printers, plotters and slide makers. In addition, Rubin offers wisdom about games, general portability and convenience. Finally, there is a list of products and suppliers addresses, with a glossary of technical words.

Undoubtedly this is a useful book, which gives good advice. None of us can know everything and, in any case, an informed second opinion is always worth having. Though it is not a book that every one will want to rush out and buy, it is good value and will probably find a place in many libraries and educational institutions.

Epson Printer User's Handbook. By Weber Systems Inc. Staff, 303p. ,pbk. Century Communications, 1984. Price: £9.95.
ISBN: 0 7126 0561 4

By Peter Baron.

If you have ever wanted a comprehensive text on Epson printers, here it is. This book covers the FX, MX and RX ranges in detail, with a few comments about the JX-80 Colour Printer and the NLQ High Quality Printer.

The first two chapters include basic information about the makeup of a dot matrix printer and how to install Epson machines on various personal computers, including Apples //e and II+. In a spirit of 'user friendliness before high tech', the authors deal next with the interactions between Epsons and various widely used software packages like dBase II, PFS and Wordstar. But the greater part of this script is devoted to a detailed examination of the various modes and control codes. It isn't particularly orientated to the Apple, but contains a vast amount of information which many users will find valuable. There are separate chapters on pitch, weight modes, line spacing, form control, output format, bit image graphics and DIP switch use, as well as items which cover the other printer features like print enhancment, half speed, graphics characters, user defined fonts and the like. Lastly, a set of four appendices include summaries of the Epson ASCII set, control codes, brief descriptions of new Epson products and the means to enhanced quality.

In summary, one can recommend this as the sort of handy and complete reference which many of us have wished for at one time or another.

VACANCY

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CHANNEL FOUR TELETEXT GALLERY

By Roger Harris.

Channel Four Television invites artistic contributions to the graphics pages of its teletext service. There is no payment for work submitted and the rewards are those of personal achievement and of possibly seeing one's masterpiece on the screen.

The teletext pages are composed of 960 character spaces; 24 rows deep by 40 columns wide. Each character space may be subdivided into six pixels.

Row 0 (top) of each page must remain blank for the header whilst column 0 (left) is reserved for graphics colour control characters.

Channel Four will send you grid pages for hand-drawing which they will then take up to three hours to labouriously convert into bytes. They will accept a 960 byte hex dump but modem facilities are not available.

Examples of teletext art may be seen on page 459 of the teletext service.

If all this proves quite irresistible, then do ask for the two teletext data tables which show bit-patterns for the graphics and alpha-numeric character sets.

Contact: Sarina Garber, Channel Four Teletext Service, 60 Charlotte Street, London W1P 2AX. (01-631 4444, ext 4361).

A friend, a knitting enthusiast, tells me that teletext art may be easily converted from Fair Isle knitting patterns!

****

NEMO AUTHORS

In the April 1985 edition of "Hardcore" we published an article entitled "NEMO" by A. Rose and R. Desbiens. The follow- ing biographical note was omitted:

Anthony Rose is presently completing a degree in Electronic Engineering at the University of Cape Town, and runs his own hardware and software design company. Robert Desbiens holds an MSc degree in Astrophysics and works for a software development company.

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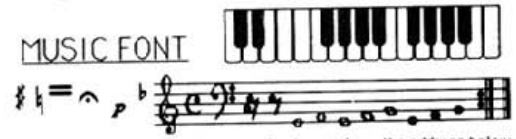

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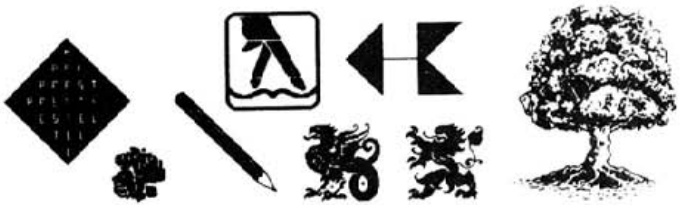


Above Samples are From *Instant Gallery

Above Samples are From *Instant Symbols

Examples below are from

***Instant Advertising - Food & Drink**

from *Instant Advertising - Hands

READER'S LETTERS

Sunbury on Thames
Middlesex

Dear Peter

After I wrote about "Data Capture 4.0" last October, I rang Southeastern Software and when they offered me "Data Capture //e" for half price plus freight ($51 in all) on the strength of my being an old customer, upgrading, I yielded to temptation and gave them my "ACCESS" number.

I must say the new version (I assume it applies to "Data Capture 5.0" for the][and][+ too) is improved beyond recognition from the old version reviewed by Quentin Reidford in the February 1984 issue.

The configuration menu accomodates modems/interface cards which use 6850 or 6551 ACIAs (most, I believe); manual/autodialling; filtering of control characters from the incoming data stream; data bits; stop bits; parity; delay between characters when transmitting; and delay after carriage return (both transmitting and receiving).

An additional "Options Menu" covers baud rate setting (110, 300, 1200) if the modem permits software control; number of bits and parity, which can be changed from the configuration setting while on line; "one key commands", whereby each of the keys 0-9 can be programmed to send, by a single keystroke, a character string of up to 40 characters (including carriage returns and a "pause" character which inserts a selectable delay of from 0.1 to 25.5 seconds in transmission of the string at any point(s) where it is inserted in it); and finally, the ability to save to and recall from disc as many "Options Files" as the disc will hold, (including the "Control Character Filter Table", phone numbers for auto-dialling systems, one-key commands, etc), so one can save a completely different set-up for each system used.

There is now a separate "Files" menu which includes the old "DCAP 4.0" functions of listing, deleting, writing, merging, sending and printing contents of the "capture" buffer with more powerful line-editing capabilities and the ability to send files straight from disc.

Last but not least, a decent 69-page manual, with Index, replaces the sketchy sheets of typescript. I'm sure I haven't done justice to everything it contains. All in all, a very much improved program and well worth looking at (it's a pity it doesn't cope with 1200/75 baud, but it's not alone in that). Any program that beats it for "straight" 300/300 or 1200/1200 baud communication must be very good indeed!

Yours sincerely

R Teale

London.

Dear Sirs,

I hope that there will be someone who can help me out with a couple of problems I have!

Firstly, I have occasion to correspond in French language and to this end I recently created a glossary for Applewriter II on my Europlus to output French characters on my Canon PW-1156A printer, (which is generally Epson-code compatible). However I cannot output the 'c-cedilla' (the 'c' with the curly tail) since the character code (decimal 92) clashes with AW's underline command (ctrl-U). Since I use the Canon's own underline function in preference to that of AW II, can I disable the AW underline command in such a way as to enable me to output the 'c-cedilla' in its stead? Has anyone got a suitable patch?

Secondly, my company has an unused copy of 'the Controller' series - unused because it is totally unsuitable for this country. This is very old financial software written in Applesoft Basic and covering 10 disks - 11 if you count the demo! I have been looking at it recently and discovered that nobody ever took a backup - because it wasn't used, I suppose - and, yes, you guessed - the program AP34AC on disk no.10 is garbaged! I was able to recover quite a lot but I am missing lines 5273 to 5290 inclusive (track 0D, sector 0F on my copy). Is anyone, by any remote chance, able to provide me with the missing lines?

Incidentally, does anyone know of a way to generate French characters as an optionto a 40-column screen. The only way I can think of is by replacing my lower-case chip with a French character generator, which for convenience sake would involve my finding unavailable French key-caps. Or is there a chip with International character sets added, which I could access through my Videx programmable function strip? The latter would be far more practicable given that I don't particularly want to keep on changing chips and key-caps every time I change the language of communication. There is no problem on the 80-column screen since I use an alternative Videx French character set eprom on my Videx board.

Best Regards,

Briant F. Carpenter
[Ed. Sorry about the ragged right, but Briant's wordpro had a weird effect on the printer]

East Hendred,
Oxon.

To the Editor. Hardcore.

[First para]

As a software user and one who is interested in how it works, as opposed to one who is interested in programming and why it works, do any of your readers have any experience of the MX 80 upgraded to the Mk 3 by using the additional chips with the Grappler card as the interface. It's a 64K Europlus by the way, with twin drives.

John Stevenson

PS Now I have a Grappler, I have an Apple II Interface Kit for Epson (APL Board 1008215) for disposal, together with manual and printerlead. Any offers ? [illegible]

Godalming,
Surrey.

Dear BASUG,

In answer to your challenge (and being the one who suffered with the DAMP program) the serial no. of my Apple is 14094. I have a no. on the main board, next to the power supply, of 7901, whatever that refers to.

The Apple was purchased in February '79 and for 32K cost £1100 ! That did not include disk drive, but just the cassette connectors, game controllers and some cassette tapes (including Applesoft).

Best Regards,

John Falk.

Sunbury on Thames,
Middsx.

Dear Peter,

[R. A. Lowe] - letters, April Hardcore, might like to know that the standard 'Routine Machine' package, put out by Southwestern Data Systems in the U.S. and available from Pace at approx. £36.80 contains exactly the routine he is looking for (as well as many others) : 'String Search.RM' by Craig Peterson and Roger Wagner. It is actually described in the manual as 'Similar to the INSTR$' operator found in other BASICs' !

Yours etc.,

Ron Teale

[Ed. I have received other letters on this subject, but some will have to wait until the next issue. Sorry folks!]

AN UNUSUAL USE FOR THE FORCE

By Martin Rogers - BSG049

I have recently had the problem of transferring VISICALC data files from the Apple to an IBM PC. Of course the diskette formats are totally different, and it was not possible to get the two machines side by side to do a transfer over a piece of wire. The solution was to send a message to myself, the text of which was the VISICALC data file. All that was required then was to take my Modem to the IBM PC site, load up a communications program and call the FORCE. The message was retrieved and stored on the IBM disk. All that was necessary then was to use a WP program to delete the Message header and trailer and re-save the file.

SWANLEY,
Kent.

Dear Peter,
Here is a quick response to Mr.Lowe's letter in April 'Hardcore'.

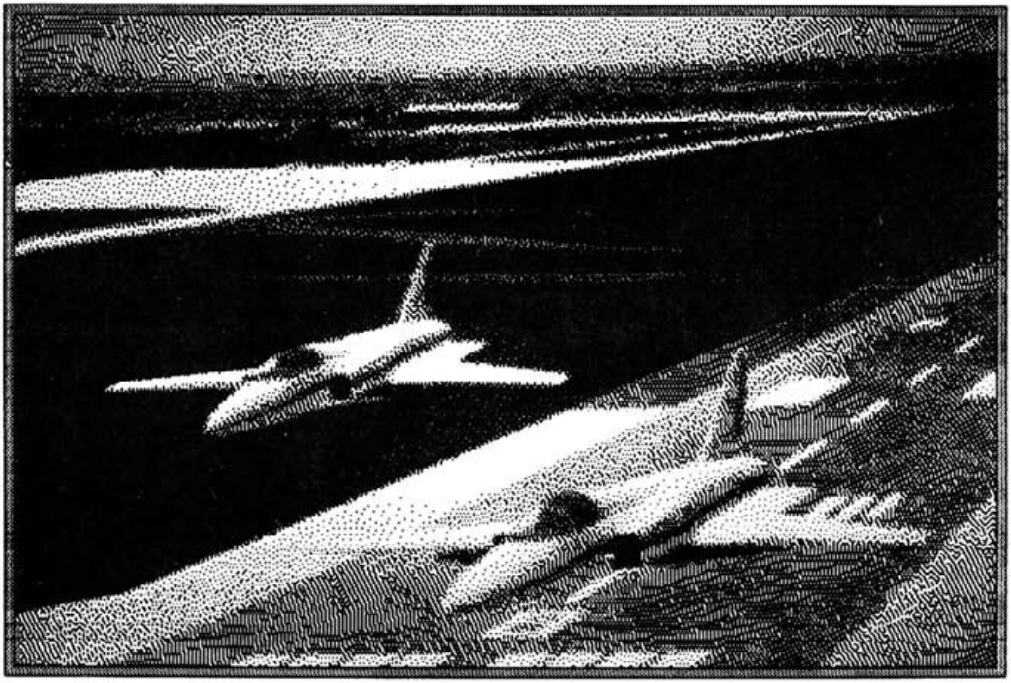
Yours sincerely,

Ray Harris.

[Ed.. Members may remember that R. C. Lowe wrote in to ask for a routine which would function like the INSTR function of MBASIC]

```
                    1     ********************************
                    2     *     INSTRING   20/4/85       *
                    3     *           RAY HARRIS         *
                    4     ********************************
                    5     *
                    6     * BRUN INSTRING
                    7     *
                    8     * & A$,B$ will check whether A$
                    9     * is a substring of B$
                    10    *
                    11    * On returning the value of
                    12    * PEEK(7) gives the following:
                    13    *
                    14    * 0 = not a substring
                    15    * 255 = error, B$ longer than A$
                    16    * other values = a substring
                    17    * PEEK(8) gives the position
                    18    *
                    19    FLAG      =     $07
                    20    POS       =     $08
                    21    ADDR1     =     $EC         ;pointer to A$
                    22    ADDR2     =     $EE         ;pointer to B$
                    23    LEN2      =     $FA         ;length of B$
                    24    PTR2      =     $FB         ;pointer to B$'s length and
                                                       address
                    25    PTR1      =     $FD         ;ditto for A$
                    26    PTRGET    =     $DFE3
                    27    CHKCOM    =     $DEBE       ;checks for comma in &A$,B$
                    28              ORG   $300
0300: A9 0B         29              LDA   #<START     ;set & hook
0302: 8D F6 03      30              STA   $3F6
0305: A9 03         31              LDA   #>START
0307: 8D F7 03      32              STA   $3F7
030A: 60            33              RTS
030B: 20 E3 DF      34    START     JSR   PTRGET
030E: 85 FD         35              STA   PTR1
0310: 84 FE         36              STY   PTR1+1
0312: 20 BE DE      37              JSR   CHKCOM
0315: 20 E3 DF      38              JSR   PTRGET
0318: 85 FB         39              STA   PTR2
031A: 84 FC         40              STY   PTR2+1
031C: A2 FF         41              LDX   #$FF
031E: A0 00         42              LDY   #0
0320: 84 08         43              STY   POS
0322: 38            44              SEC               ;compare lengths
0323: B1 FD         45              LDA   (PTR1),Y
0325: F1 FB         46              SBC   (PTR2),Y
```

SPEEDLOADER



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```
0327: 90 32      47              BCC  END
0329: AA         48              TAX
032A: E8         49              INX
032B: B1 FB      50              LDA  (PTR2),Y
032D: 85 FA      51              STA  LEN2
032F: C8         52              INY
0330: B1 FD      53              LDA  (PTR1),Y    ;move pointers
0332: 85 EC      54              STA  ADDR1
0334: B1 FB      55              LDA  (PTR2),Y
0336: 85 EE      56              STA  ADDR2
0338: C8         57              INY
0339: B1 FD      58              LDA  (PTR1),Y
033B: 85 ED      59              STA  ADDR1+1
033D: B1 FB      60              LDA  (PTR2),Y
033F: 85 EF      61              STA  ADDR2+1
0341: E6 08      62              INC  POS
0343: A4 FA      63   CHECK      LDY  LEN2        ;start check from end of
                                                   string
0345: 88         64   CHECK1     DEY
0346: 30 13      65              BMI  END
0348: B1 EE      66              LDA  (ADDR2),Y
034A: D1 EC      67              CMP  (ADDR1),Y
034C: F0 F7      68              BEQ  CHECK1
034E: E6 08      69              INC  POS
0350: CA         70              DEX
0351: F0 08      71              BEQ  END
0353: E6 EC      72              INC  ADDR1
0355: D0 02      73              BNE  CHECKOUT
0357: E6 ED      74              INC  ADDR1+1
0359: D0 E8      75   CHECKOUT   BNE  CHECK       ;always
035B: 86 07      76   END        STX  FLAG
035D: 60         77              RTS

--End assembly--

94 bytes                        Errors: 0

Symbol table - alphabetical order:

ADDR1    =$EC       ADDR2    =$EE       CHECK    =$0343     CHECK1   =$0345
CHECKOUT=$0359      CHKCOM   =$DEBE     END      =$035B     FLAG     =$07
LEN2     =$FA       POS      =$08       PTR1     =$FD       PTR2     =$FB
PTRGET   =$DFE3     START    =$030B

Symbol table - numerical order:

FLAG     =$07       POS      =$08       ADDR1    =$EC       ADDR2    =$EE
LEN2     =$FA       PTR2     =$FB       PTR1     =$FD       START    =$030B
CHECK    =$0343     CHECK1   =$0345     CHECKOUT=$0359      END      =$035B
CHKCOM   =$DEBE     PTRGET   =$DFE3
```

EXAMPLE (Ray Harris INSTRING).

```
5  PRINT  CHR$ (4)"BRUN INSTRING"
10  INPUT A$,B$
20  & A$,B$
30  IF  PEEK (7) = 0 THEN  PRINT B$" NOT A SUBSTRING OF "A$: END
40  IF  PEEK (7) = 255 THEN  PRINT "ERROR: "B$" LONGER THAN "A$: END
50  PRINT  PEEK (8)
```

DOS FILES & COMMANDS

By Roger Harris.

Subroutines for reading from or writing to sequential or random access files often involve much repetition of DOS commands and file names, especially if several files are each accessed by different subroutines.

For example, a subroutine used to read a sequential text file might look like this:

```
100 PRINT D$;"OPEN TEXT.FILE"
110 PRINT D$;"READ TEXT.FILE"
120 FOR X = 0 TO 99
130 INPUT A$(X)
140 NEXT X
150 PRINT D$,"CLOSE TEXT.FILE"
160 RETURN
```

If there is only one file to be accessed then there will probably be no saving in space. If several files are to be accessed then the following will help:

```
50010 D$ = CHR$(4)
50011 DO$ = D$ + "OPEN"
50012 DR$ = D$ + "READ"
50013 DW$ = D$ + "WRITE"
50014 DC$ = D$ + "CLOSE"
```

Lines 50010 to 50014 should form part of the program initialisation subroutine.

Subroutine.100-199 may now be extended and rewritten as follows:

```
200 FI$ = "TEXT.FILE": FI = 0: GOTO 120
205 FI$ = "NAME.FILE": FI = 1: GOTO 120
210 FI$ = "DATE.FILE": FI = 2: GOTO 120
215 FI$ = "TOWN.FILE": FI = 3: GOTO 120
217:
220 PRINT DO$;FI$
230 PRINT DR$;FI$
240 FOR X = 0 TO 99
250 INPUT A$(FI,X)
260 NEXT X
270 PRINT DC$;FI$
277:
280 RETURN
```

Subroutine.200-299 may be used to read any of four, or more, different files simply by specifying the appropriate line number for entering the subroutine:

```
8610 GOSUB 200: REM load TEXT.FILE
8620 GOSUB 205: REM load NAME.FILE
8630 GOSUB 210: REM load DATE.FILE
8640 GOSUB 215: REM load TOWN.FILE
```

Note that the contents of the four files are storeed in a two dimensional array, A$(3,99), where variable FI refers to the file.

It may even be preferable to store the file names in a DOS file and then read the names into an array, FI$(3) where:

```
... FI$(0) = "TEXT.FILE",
... FI$(1) = "NAME.FILE",
... FI$(2) = "DATE.FILE",
... FI$(3) = "TOWN.FILE".
```

Subroutine.200-299 may then be simplified to read:

```
300 PRINT DO$;FI$(FI)
310 PRINT DR$;FI$(FI)
320 FOR X = 0 TO 99
330 INPUT A$(FI,X)
340 NEXT X
350 PRINT DC$;FI$(FI)
360 RETURN
```

Subroutine.300-399 may be called by:

```
8700 FI = 0: GOSUB 300
8710 FI = 1: GOSUB 300
8720 FI = 2: GOSUB 300
8730 FI = 3: GOSUB 300
```

Lines 120, 240 and 320 may be further amended to read:

```
... FOR X = FR TO LR
```

where FR contains <First Record, e.g. 0> and LR contains <Last Record, e.g. 99>. These two variables may then be specified in a calling subroutine:

```
7540 FI = 3: FR = 0: LR = 8: GOSUB 300.
```

All of these methods assume that the DOS commands appear twice: in the program and as string variables. DOS commands as shown in lines 50010 to 50014 may also be read from the disk and stored in an array and read using subroutine.300-399.

Storing the DOS commands in an array has an important, albeit potentially risky, advantage: one can change a READ subroutine to a WRITE subroutine simply by changing a single variable.

One can arrange that an OPEN command is followed by a READ or WRITE and an APPEND command is always followed by a WRITE simply by changing the variable DF which specifies the command. If the variable RN (Record Number) is in the range 0 to 32767 then a READ or WRITE will commence at a specified record POSITION. (Set RN<0 to cancel POSITION).

```
D$(0) = D$ + "APPEND": REM Write
D$(1) = D$ + "OPEN": REM Write
D$(2) = D$ + "OPEN": REM Read
D$(3) = D$ + "WRITE"
D$(4) = D$ + "READ"
D$(5) = D$ + "POSITION"
D$(6) = D$ + "CLOSE"

500 PRINT D$(DF); FI$(FI)
510 IF RN>-1 AND DF<>0 THEN
      PRINT D$(5); FI$(FI); ",R"; RN
510 PRINT D$(DF+2+(DF=0)); FI$(FI)
520 FOR X = FR TO LR
530 IF DF=2 THEN GOTO 550
540 PRINT A$(FI,X): GOTO 560
550 INPUT A$(FI,X)
560 NEXT X
570 PRINT D$(6);FI$(FI)
580 RETURN
```

Great care must be taken that the variables DF, RN, FR and LR are correctly specified in the calling subroutine. It is all too easy to overWRITE good data with garbage instead of READing.

Random access files need slightly different treatment to sequential files: when OPENing a file, the record length in characters, must be specified and the record number must be specified for both READ and WRITE operations.

I shall use an amendment of subroutine-.300-399 as an example:

```
RL$ = ",L32": REM Record Length
Record number is defined by FR and LR.
400 PRINT DO$;FI$(FI);RL$
410 FOR X = FR TO LR
420 PRINT DR$;FI$(FI);",R";X
430 INPUT A$(FI,X)
440 NEXT X
450 PRINT DC$;FI$(FI)
460 RETURN
```

Both RL$ and RN$ may be given values either in the program initialization subroutine or in the calling subroutine.

An example of a READ/WRITE subroutine for random access files is as follows:

```
D$(0) = D$ + "READ"
D$(1) = D$ + "WRITE"
D$(2) = D$ + "OPEN"
D$(3) = D$ + "CLOSE"

500 PRINT D$(2); FI$(FI); RL$
510 FOR X = FR TO LR
520 PRINT D$(DF); FI$(FI); ",R"; X
530 ON DF GOTO 550
540 PRINT A$(FI,X): GOTO 560
550 INPUT A$(FI,X)
560 NEXT X
570 PRINT D$(3); FI$(FI)
580 RETURN
```

where DF = DOS Function: 0 = WRITE and 1 = READ.

One may READ or WRITE a single record by setting FR and LR to the same value. Program lines to call subroutine.500-599 might be:

```
7430 FR = 32: LR = 32:
7440 DF = 1: REM Read record number 32
                in four DOS files
7447:
7450 FOR FI = 0 TO 3
7460 GOSUB 500
7470 NEXT FI
```

Such methods are only partially self documenting and the reasoning behind the use of certain variables may only be clear to the programmer. You may prefer lots of REMs. I prefer few REMs and lots of detailed documentation on paper to accompany each subroutine.

HINT

By Q.

For Language/Memory Card users: If you are tired of DOS 3.3 dumping whatever language is on your card every time you re-boot with a PR#6, here's the fix: Using Dan's Disk Utility or some other similar program, read track 0, sector 09, byte CC (should be 81) and change it to 10. Now when you do a PR#6 whatever is in the language card will still be there.

PRODUCT NEWS

Maybe you will remember that I mentioned in the last issue that Chris Bonington was taking an Apple IIc to his base camp and that it would be used to help plan the climb to the summit of Everest. Well, Chris made it to the top. We wished him luck last time round, so now it's a well deserved 'congratulations'. As a past daudler up the Welsh rocks, I can only imagine what a heck of a kick it must give one to get to the top of the world's highest point. From the computerist's point of view, it would be of considerable interest to know just how valuable the IIc was as a strategic planning tool, as opposed to a data base manager for the stocks of provisions and other gear.

Those who didn't might like to know that I managed to get along and stagger round Apple 85 for a couple of hours. It was in fact my first visit to the show, so I do not have any past reference point with which to compare it. Being the sort of person who finds wordpros, databases and communications interesting, I felt that it was all worth while, but have no doubt that it would have been even better if more enthusiastic amateurs had been there. I'm a real novice at chess and any computer can beat me, so I play more for a kick in the ...., than for any other reason ! Psion's Macintosh Chess looked good though. It has 3 D graphics, 28 levels of play, 50 master games and pull down menus, as well the ability to change one's view of the board from one end to the other. Not least, a price of £49.50 seems reasonable.

I ate my rather greasy cornish pastie while watching a demonstration of the integrated package 'Jazz' on the big screen of a projected Mac and then went back to the BASUG stand which was small, but throbbing with enthusiasm. Greengate were giving demonstrations of their impressive DS:3 sound sampler and P & P had some very attractive bargains in both hard and software. Some of our other advertisers were so busy that I couldn't get near enough to have a word.

Lastly, just a mention that we have received a copy of the 1984/85 CP/M edition of The Free Software Handbook. Hopefully, the programs themselves will be available on Apple format soon. More next issue.

GROUPS

Central London Group

The group meets in Room 97, County Hall, GLC, south side of Westminster Bridge. Car parking is available. Recent meetings have included demonstrations of the Greengate DS:3 and the Robocom Graphics System and a database workshop. The

Contact telephone number is [redacted] (evenings). See Diary for dates.

EOF

Booting a Reluctant Screenwriter II

By Boris Levine.

Using Screenwriter II extensively lets you get to know its characteristics, including some that develop only after long use. For example, one or more of the sub programs which constitute SW II can be mended, using the backup disk. Now, here's another: What to do if SWII won't boot.

If SWII simply spins on and on in drive 1, but is otherwise OK, here's a technique which might help. First, boot DOS 3.3 into memory from any disk that has it. Next place the SWII disk in drive 1. Now type in "BRUN START" <CR>. And SWII should arrive, ready for use.

WHAT, it hasn't booted ! Make two quick checks before calling for help beyond this article. With DOS in place, try CATALOG to see that the binary program START is on disk. Then re-check the SWII sub-programs, using verify from the FID program. If any of them report 'I/O ERROR' or otherwise don't work see [the author's] article on "Mending Screenwriter II" (February 1985 WAP Journal). Or you may have acquired a problem entirely outside the SWII program. Take a look at some other programs to see whether 'non-booting' has suddenly become endemic to your system.

End on nightmare. IT DID BOOT.

The above item is reprinted from the Journal of Washington Apple Pi, 7(4), April 1985.

DIARY

June		July	
4th	Herts Group. 8pm.	2nd	Herts Group. 8pm.
5th	Essex Group. 8pm.	3rd	Essex Group. 8pm.
6th	Central London Group. 6pm.	4th	Central London Group 6pm.
10th	Hants & Berks Group. 7.30pm.	8th	Hants & Berks Group. 7.30pm.
14th	Birmingham Group. 8pm.	12th	Birmingham Group. 8pm.
17th	Croydon Group. 7pm.	15th	Croydon Group. 7pm.
19th	Essex Group. 8pm.	17th	Essex Group. 8pm.
	Harrogate Group. 7.30pm.		Harrogate Group. 7.30pm.

August	
1st	Central London Group. 6pm.
6th	Herts Group. 8pm.
7th	Essex Group. 8pm.
9th	Birmingham Group. 8pm.
12th	Hants & Berks Group. 7.30pm.
19th	Croydon Group. 7pm.
21st	Essex Group. 8pm.
	Harrogate Group. 7.30pm.

AGM - 11 am, July 6th in the Computer Room, GLC Building, London. See Update for details.

Prize Winners have not been forgotten - they will be announced in the next issue.

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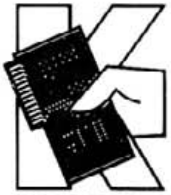

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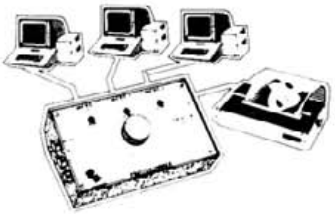

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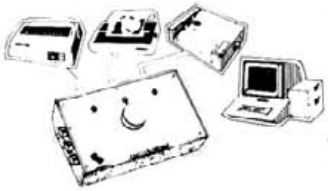

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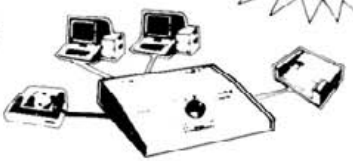

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